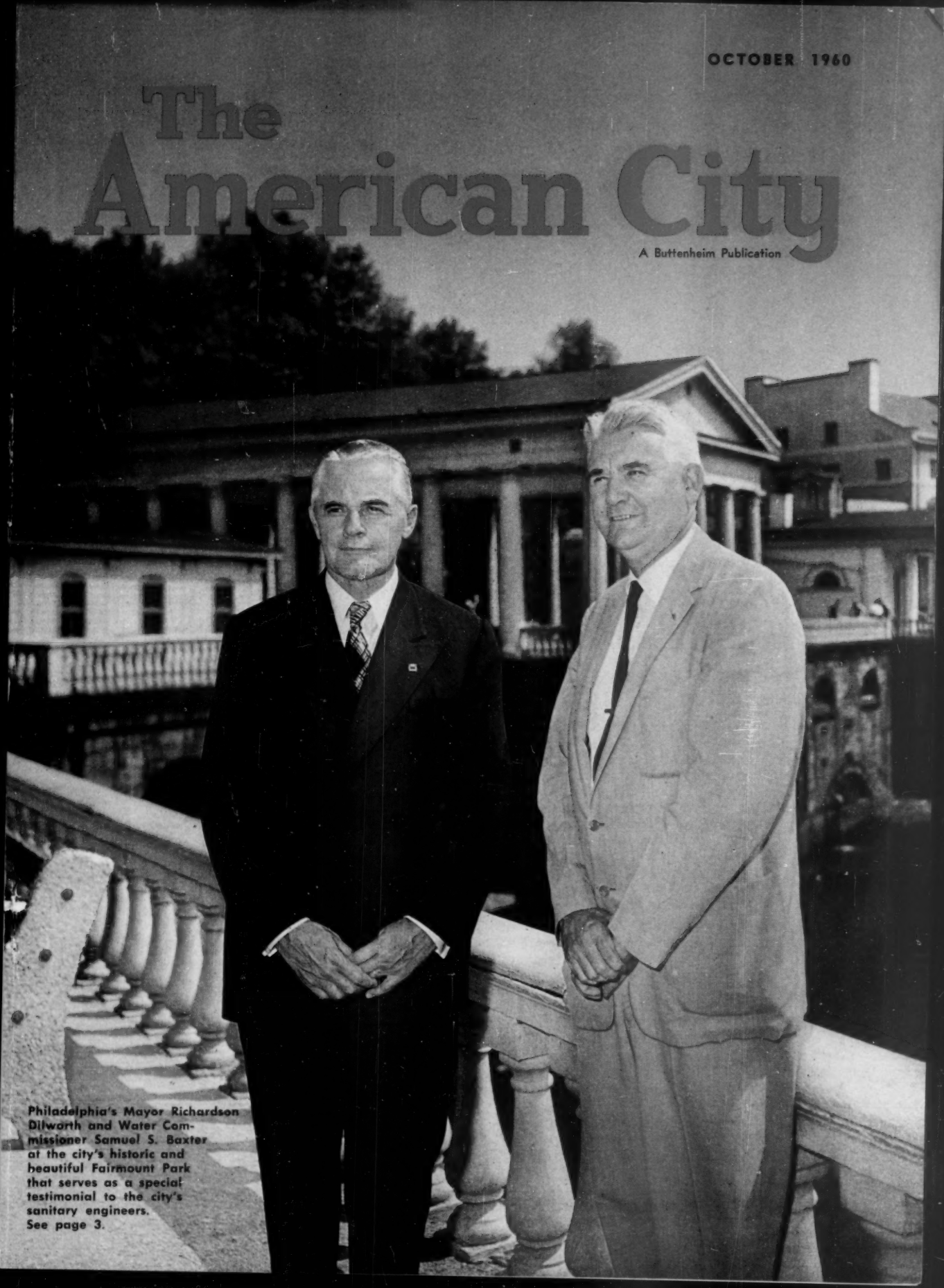
OCTOBER 1960

The American City

A Buttenheim Publication



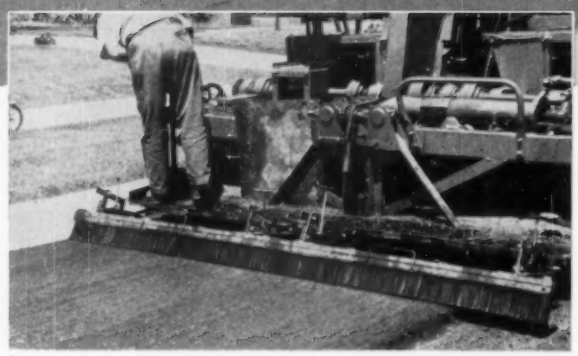
Philadelphia's Mayor Richardson Dilworth and Water Commissioner Samuel S. Baxter at the city's historic and beautiful Fairmount Park that serves as a special testimonial to the city's sanitary engineers.
See page 3.

Constructing durable hot-mix Texaco Asphaltic Concrete surface over gravel base is final step in paving street of Milwaukee suburb.

How Milwaukee paves a new suburb

Milwaukee's method of handling street paving in a new suburb has worked out very satisfactorily for all concerned. While houses are being erected, the city covers the streets with gravel. This provides an adequate surface temporarily and the gravel is gradually compacted by traffic. After completion of the homes and the construction of sidewalks, curbs and gutters, work is resumed on the pavement. A contractor brings the gravel to grade, primes it with a medium-curing cutback asphalt, then lays a durable 2½-inch wearing surface of hot-mix Texaco Asphaltic Concrete.

This economical type of pavement will deliver many years of service with a minimum of maintenance. The Texaco Asphalt wearing surface is speedily laid and opened to traffic, requiring no time-consuming curing period. Because of its resilience and the fact that it needs no expansion joints, it has a velvet-smooth riding quality which is especially desirable in suburban areas. Other advantages of a Texaco Asphaltic Concrete pavement on a residential street are its highly skid-resistant texture and the absence of glare, thanks to its dark surface.



Note broom attachment at rear of asphalt paving machine.

Texaco Asphalt Cements, Cutback Asphalts and Slow-curing Asphaltic Oils offer the municipal official a number of heavy-duty, intermediate and low-cost types of paving for streets, airports and parking areas.

Helpful Booklets

Two Texaco brochures describe the methods and materials recommended for all types of Asphalt paving. We shall be glad to send you copies.

Contractor: **WHITE CONSTRUCTION COMPANY**

TEXACO INC., Asphalt Sales Div., 135 E. 42nd Street, New York 17
Chestnut Hill 67, Mass. • Chicago 4 • Denver 1 • Houston 1 • Jacksonville 1
Minneapolis 3 • Philadelphia 2 • Richmond 25

TEXACO

TEXACO ASPHALT

The American City
A Buttenheim Publication

OCTOBER 1960

MAGAZINE OF MUNICIPAL MANAGEMENT AND ENGINEERING

ADMINISTRATION AND GOVERNMENT

Our municipal notebook 29
Municipal public relations 151
Dynamic municipal leaders 171
Helping communities to help themselves 188

BUSINESS MACHINES AND SYSTEMS

Punched tape helps lift work load 157

STREET CONSTRUCTION AND MAINTENANCE
STREET CLEANING AND SNOW REMOVAL

Five days, 75,000 square yards 11
Don't overmix concrete 11
Philadelphia tests asbestos asphalt 11
New trash baskets in Philadelphia 25
Plows start with four inches of snow 25
Emergency plan saves the day 90
Sweeper to pay its way in three years 95
Appleton returns to concrete paving 110

OUTDOOR LIGHTING

Pasadena's street lights fit each area 116
Two Rivers relights on a massive scale 129
Residents benefit from county ordinance 131
Lighting Winnipeg's streets and holidays 133
Lighting Deerfield Beach 133
Street lights on Duluth's ship canal 137
Grandville's fluorescents 137

POWER

Automation—the municipal tax saver 99

SEWERAGE AND SEWAGE PURIFICATION

Area considered in pump-station design 21
Purified sewage as water source 21
Metropolitan sewerage pacts—Part I 87
We're ready for the next 20 years 112
A sewerage system below sea level 190

PURCHASING

1959 purchasing sum-up in Atlanta 181
Purchasing news 213

TRAFFIC CONTROL

Parking meters cleaned ultrasonically 109
How parking is done in Pittsburg, Calif. 120
Nashville's PTA crossing patrols 123
Attacking Decatur's bad accident record 123
Pointing the way 125
Keeping 'em ticking on Niles' streets 127
Traffic control in Moscow 127

REFUSE COLLECTION AND DISPOSAL

Sanitary landfill is a money maker 23
Good records mean better control 100

WATER SUPPLY AND TREATMENT

Uniforms make meter reading safer 16
Public demanded a water-rate increase 16
Texas site for experimental water plant 16
No peak-day worries 92
An atmosphere of automation 106
We put one reservoir inside the other 115
No more algae problems 185

PLANNING, ZONING, AND HOUSING

We know where we're going 161
Fresno paints a new central picture 177

PUBLIC SAFETY

Waltham's fire activities 27
Narrow radio band for all cities 27
Efficient address file 27

AIR POLLUTION

Air pollution control notes 30

PARKS AND PLAYGROUNDS

Ogden starts development program 9
Giant aluminum Christmas tree 9
Rotation tree pruning 103

AIRPORTS AND AVIATION

Reflectorizes all runways 104

PEST CONTROL

Better roadside weed control 96

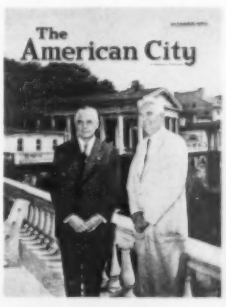
MISCELLANEOUS

Random notes on the APWA Congress 139
1960 Aid-To-Education Award 139
Queensboro Bridge carries more than traffic 155

DEPARTMENTS

Letters to the editor 5
Free catalogs 41
Zoning notes 193
Legal notes 195
City managers 199
Conventions: when and where 202
Municipal and civic publications 206
Municipal bond market 211
About people 230
Professional service directory 233

(For index to Advertisers, see Page 245)



Cover Picture

Fairmount Park in Philadelphia has a special meaning to sanitary engineers, who meet here this month to take part in the annual meeting of the Water Pollution Control Federation.

At one time Fairmount Park was the site of the city's water works, built 140 years ago. But later, this area of the Schuylkill River became foully polluted with sewage. Today, the city's sewerage program has erased this blemish and remade it into an area of great charm. The old water works, now an aquarium, is visible immediately behind the mayor and the commissioner. One can compare it with the illustration of the plant, reproduced on page 171.

For other stories in this issue referring to Philadelphia, be sure to turn to p. 87, "Metropolitan Sewerage Pacts," p. 106, "An Atmosphere of Automation," and p. 171, "Dynamic Municipal Leaders."

C. A. HARRELL
City Manager
Cincinnati, O.

O. L. HUBBARD
Mayor
Dearborn, Mich.

R. J. LINDLEY
City Clerk
Rockford, Ill.

J. W. MORGAN
Mayor
Birmingham, Ala.

these men... and their communities agree:

OUTDOOR TELEPHONES PROVIDE GREATER PUBLIC SERVICE

CINCINNATI, OHIO

"Public acceptance and use of this service is amply evidenced by the commissions received by the City of Cincinnati since 1958."

DEARBORN, MICHIGAN

"Outdoor telephones in strategic locations have helped us maintain a high standard in communications."

ROCKFORD, ILLINOIS

"I've heard some very good comments on the public telephones. The revenue the city receives reflects their use."

BIRMINGHAM, ALABAMA

"They provide our city with emergency telephones on a 24-hour basis."

More and more cities are installing outdoor telephone booths on public property. In every case, outdoor telephones bring new revenue to the municipal treasury and new security and convenience to the community.

Your local Bell Telephone Company will be glad to design a Public Telephone Plan especially for your city. Just call the manager at your telephone business office.

BELL TELEPHONE SYSTEM

Volume 75 Number 10

The American City

HAROLD S. BUTTENHEIM, *Editor Emeritus*
WILLIAM S. FOSTER, *Editor*
ALDEN W. WELCH, *Research Editor*
ELROY F. SPITZER, *Engineering Editor*
SHEILA C. MALTON, *New Products Editor*
WILLIAM T. DULAC, *Production Manager*
WILLIAM DE R. TAAFFE, *Asst. Prod. Mgr.*

Editorial and Executive Offices:

470 PARK AVE. SOUTH, NEW YORK 16
MURRAY HILL 5-9250
EDGAR J. BUTTENHEIM
Chairman of the Board
DONALD V. BUTTENHEIM, *President*
GEORGE S. CONOVER, *Vice President*
EDGAR M. BUTTENHEIM, *Publisher*
G. E. CARNEY, *Treasurer*

Sales Offices:

NEW YORK 16 • 470 PARK AVE. SOUTH
MURRAY HILL 5-9250
MYRON MACLEOD, *Advertising Manager*
ARTHUR B. BURGAN

CHICAGO 6 • 2100 DAILY NEWS BLDG.
FINANCIAL 6-4611
WARNER H. ROBINSON
KENNETH E. BROWN

CLEVELAND 14 • 1814 SUPERIOR BLDG.
CHERRY 1-1755
FRED SCHENCK

LOOKOUT MOUNTAIN 8, TENN.
121 NORTH HERMITAGE
TAYLOR 1-2853
CURTIS R. BUTTENHEIM
Southern Sales Manager

LOS ANGELES 27 • 1870 HILLHURST AVE.
NORMANDY 5-5143
ALBERT T. MILLER, *Pacific Coast Mgr.*
JAMES F. MURPHY

THE AMERICAN CITY is issued monthly by BUTTENHEIM PUBLISHING CORPORATION. Subscription rates: $4 in the U. S. and Canada; $7 in all other countries of the world. Single copies, 75 cents. Back copies, $1. Entered as second-class matter July 20, 1910, at the Post Office at New York, N. Y., under Act of March 3, 1879. Printed in the U. S. A. THE AMERICAN CITY is indexed regularly by Engineering Index, Inc., and the Reader's Guide to Periodical Literature. Copyright, 1960, by Buttenheim Publishing Corporation, 470 Park Avenue South, New York 16, New York.

ASSOCIATED PUBLICATIONS

CONTRACTORS and ENGINEERS	OVERVIEW	
Municipal Index	MART	AMERICAN SCHOOL AND UNIVERSITY

LETTERS TO THE EDITOR

Phoenix' Growth and Efficiency

The editorial, "Efficient Cities," in your August issue was refreshing, especially in view of the prevailing general attitude that all government is inefficient. We are glad that you used Phoenix to illustrate your point.

However, Phoenix is evidently growing so fast that our growth has far outstripped the ability of the mass communication media to keep you informed. Your editorial reported that Phoenix has grown 125% in population during the past decade while the U. S. Census Bureau says we have grown by 306.6%. Our population has expanded from 106,818 in 1950 to 434,277 in 1960, enabling Phoenix to jump from 98th to 29th place among the larger cities in the nation. Numerically our growth was exceeded only by Los Angeles and Houston.

Despite the 306.6% increase in population, our city payroll has increased only 208.5% during the past decade. In this period the number of employees has increased only 124.6% and the number of employees per thousand population has decreased from 11.9 to 6.7. At the same time the general level of service has been raised. This record is due to the fact that we have been able to maintain an attentive attitude toward improvements in methods and equipment while making the transition from a small to a large city.

RAY W. WILSON
City Manager
Phoenix, Ariz.

EDITOR'S NOTE: Who can keep up with a city growing this fast?

Land Uses That Bring the Best Income

In West Hartford, Conn., of 11 tax-paying land uses, all but two contribute more in taxes than they receive in services. The two that cost more to service than they provide in taxes are the single-family homes and the 2- through 4-family homes. This is the result of a study by the town's Plan and Zoning Commission. The study was directed by Mr. S. Charles Adams, Department of Civil Engineering, University of Connecticut.

Apparently the large portion of the Board of Education budget spent on these two tax-deficit land uses is the critical factor causing this unbalance. The other nine tax-paying uses combined to make up the deficit created by these two uses, and also the three non-tax-paying uses.

Vacant land earns the greatest surplus. For every tax dollar spent on servicing this land use, the town receives $3.88 in tax payment. Vacant land earns 2.4% of the total gross property tax income; however, it earns 13.8% of the net income after allocating costs.

Wholesale, storage and semi-industrial uses are the next financially best uses. For each tax dollar spent in servicing this group the town receives $2.84. They contribute only 1.8% of the total gross property-tax income; but provide 9.1% of the net tax income.

Other commercial uses (office, auto service, utilities, etc.) are next in line. These bring in $2.73 in taxes paid for every dollar spent on services. These contribute 1.9% of the gross tax income, but account for 13.5% of the net tax income.

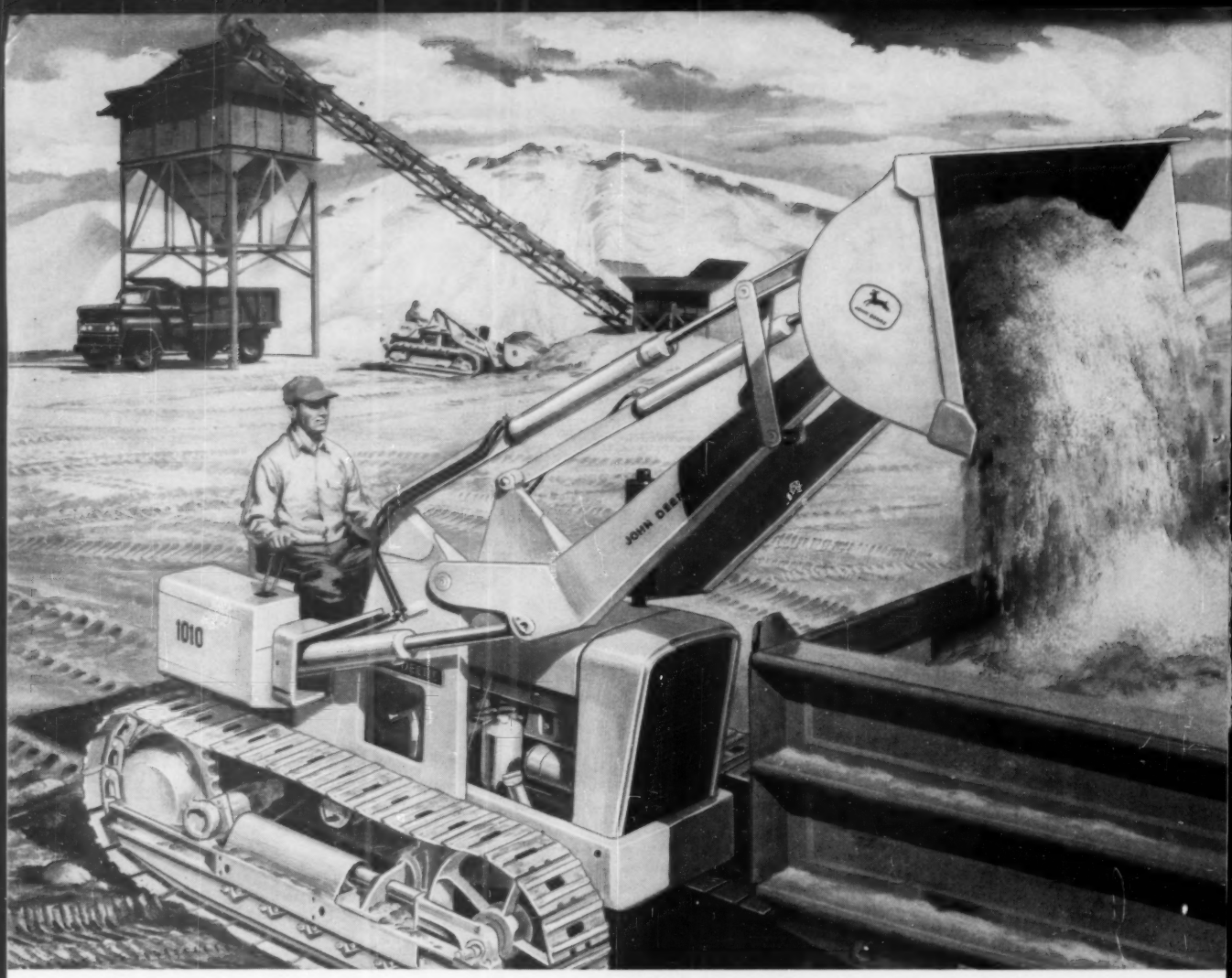
Apartment houses, of five families or larger, are a financial tax asset, paying $1.36 in taxes for every tax dollar in service received. These apartments account for 2.8% of the gross property-tax income, and return 5.8% of the total net income.

Retail establishments, commonly thought to be extremely advantageous, only indicate a return of $1.26 per dollar of services expended. If the revenue from personal property were excluded, retail uses would contribute only $0.85 per dollar of services. Retail establishments account for 6.5% of the total gross tax income and earn 10.4% of the net tax income.

Single-family homes are not shirkers by any means. As a group they contribute $0.90 for every tax dollar spent on their behalf. They account for 68.1% of the total gross property tax income, require 77.3% of the total allocated costs and use up 71.2% of the net deficit.

The 2- through 4-family homes, dollar for dollar, show up with the largest deficit. This use receive a dollar's worth of public service for only $0.68 in tax payment. They account for 6.1% of the gross tax income, 9.3% of the total allocated

(Continued on page 18)



*Now...***TEN-TEN** *is the word for low-cost earthmoving!*

Watch for them! Already, the first members of John Deere's "New Generation of Power" are proving their built-in economy and high work capacity on earthmoving jobs. Powered by all-new John Deere-built 4-cycle, 4-cylinder valve-in-head engines operating at speeds to 2500 rpm, new Ten-Ten Crawlers deliver the versatile performance that loading, dozing, and other construction jobs require. High horsepower per pound plus lugging ability, gives the Ten-Ten plenty of capacity for continued rough work on roads, dams, or building-site preparation. A direction reverser-equipped transmission (optional) provides time-saving maneuverability and handling ease. Gasoline and Diesel power are available, with a wide choice of dozers, backhoes, loaders, and other working equipment.

Get the facts on the new John Deere Ten-Ten Crawler from your John Deere Dealer. He'll provide information, too, on the John Deere Credit Plan and long-term leasing. Check the yellow pages for your nearest dealer.

JOHN DEERE

LOADERS
BULLDOZERS
BACKHOES
AND
EARTHMOVING
EQUIPMENT

JOHN DEERE · 3300 RIVER DRIVE · MOLINE · ILLINOIS

Those Census Figures

—that have been coming out of Washington and creating so much excitement, really need a little more analysis than they have been getting. From the way one reads about them in the papers, one gets the impression that the census is some giant track meet with Los Angeles moving up into third place, getting ready to challenge the two leaders, New York and Chicago.

The total number of people within a political boundary is interesting, but the concentration of people per unit of land area gives a more revealing picture. To determine this, we took the 50 largest cities that the latest nose-count disclosed, and calculated how many people each has per square mile. We list below the 20 cities with the greatest number per square mile of area.

	1,000's OF PEOPLE		
City	Per Sq. Mile	Total	Pop. rank
New York City	24	7,710	1
Jersey City, N. J.	21	270	48
Newark, N. J.	16½	396	30
San Francisco	15½	716	12
Philadelphia	14½	1,960	4
Boston	13	678	13
Buffalo, N. Y.	12½	528	20
Baltimore	12	921	7
Cleveland	12	870	8
Detroit	12	1,673	5
Milwaukee	12	735	11
St. Louis	12	740	10
Washington, D. C.	12	747	9
Chicago	11	3,493	2
Pittsburgh	10½	601	16
Rochester, N. Y.	9	316	38
Minneapolis	8	481	25
Dayton	7½	258	50
Tulsa	7½	259	49
Oakland, Calif.	7	361	33

Interestingly enough, third-place Los Angeles with its nearly 2½ million people, has only about 5,500 people per square mile. Sixth-place Houston with nearly a million people, has probably less than 5,000; we can't tell for sure because we don't have the area encompassed by its recent Texas-size annexation. Fifteenth place New Orleans with 621,000, has only 3,000; seventeenth-place San Antonio with 584,000, has 3,500; eighteenth place Seattle, 6,000; and nineteenth place San Diego, 5,500.

Of course growth is always stimulating, but growth does not tell a complete story. It can be dangerous if the city has not prepared itself for the increase. Moreover, when urban areas reach these high concentrations of people indicated in the table, a levelling of the population figures probably is a good, constructive action, symbolic of progress rather than an indication of decay.

Neither should we fall into the trap of saying that a high concentration of people in an urban area is necessarily bad, nor should we say that the reverse is necessarily good.

There are recognized advantages to high concentrations of people, if they enjoy the benefits of good housing and have the advantages of good schools, parks and other facilities that make for well-balanced living. A densely populated urban area can support an adequate rapid-transit system in better shape than others. It requires less water and sewer mains, less street lighting, fewer streets to maintain and keep clean, and it simplifies refuse collection.

Mere numbers alone is no way to appraise these census figures. An increase in population *can* mean that a city now is making a more valuable use of its land area. A drop in population *can* mean that a city is gradually relieving difficult overcrowding conditions and in this way also improving its land use. If these conditions prevail, both are constructive and actually deserve commendation.

Tax Dollars

—also deserve some objective scrutiny. Understandably enough, everybody complains about it, but at the same time, everybody seems anxious that the activities that these dollars support be upgraded.

Today, total taxes collected by all levels of government in the United States amount to a staggering $100 billion. This is substantially over the total Gross National Product only a few years ago. On a per-capita basis, this means over $567 per year.

Of every tax dollar raised, the federal government takes 67c and leaves the state and local governments 33c. A decade ago, the federal government took 75c. However, the reason for the change is that the federal total has remained unchanged while the state and local taxes have increased some 50%.

Nevertheless, of that substantial federal amount, nearly two-thirds is earmarked for national defense and international relations. Whether this can be reduced or not during this period of international tensions is questionable.

The total tax dollar allocates less than 1½c to police protection, and this undoubtedly should be raised, particularly during this period of growing urban tensions. It allocates less than 1½c to sanitation, less than a cent to local fire protection, about three quarters of a cent to housing and community redevelopment; only slightly more than a half cent to parks and recreation, and about the same for correction. It takes no prophet to recognize that these must and will go up. These are basic requirements in an urbanized nation.

Stretching the long arm of the law in Milwaukee

Milwaukee, Wisconsin — This metropolitan area of over a million is justly proud of its traffic safety record and its police department. In 1959, the city had the lowest fatality record ever achieved by a community over 250,000. Service and maneuverability of its 80 Solos and 37 Servi-Cars are cited as important factors in Milwaukee's effective traffic control program.

OPENING DAY FOR THE BRAVES — It takes only an hour and a half to park approximately 10,000 cars at Milwaukee's County Stadium when officers mounted on Harley-Davidson Solos and Servi-Cars are on the job.

The force that made Milwaukee famous...

moves on Harley-Davidson Servi-Cars and Solos

Mobility is the key to successful law enforcement! Harley-Davidson police motorcycles supply this maneuverability when only minutes count. They stretch the arm of the law to reach any part of the community quickly whether the trouble spot is traffic, crime, fire or other emergency.

Harley-Davidsons *balance* your effectiveness: *Solos* are the ideal pursuit vehicle. Nothing stops these maneuverable two-wheelers from arriving on the scene of trouble . . . fast. Busy *Servi-Cars* are triple-threats for traffic control . . . parking and meter work . . . residential patrolling. Call your Harley-Davidson dealer, or write Harley-Davidson Motor Co., Milwaukee 1, Wisconsin, for free folder on effective police mobility — the Harley-Davidson way.

HARLEY-DAVIDSON
Police Motorcycles

Ogden Starts Park Program

Ogden golfers will soon play on fairways cut through shrub oak, shown here, with a mountain range for a backdrop.

Ogden, Utah, is planning immediate development of a 240-acre park site which the city secured 32 years ago.

Under the proposed plans the city will build an 18-hole golf course, 7,000 yards long. The course will cover five blocks of 760 feet each running from north to south and two blocks of 760 feet each running from east to west. Fifteen of the eighteen holes will run north to south with the remaining three holes running from east to west. Thus, players will face the sun on only three holes.

The clubhouse will be built upon a hill in the center of the course with holes #1 and #9 on the north side of the clubhouse and #10 and #18 on the south side of the clubhouse. Construction of the first nine holes will commence early this fall and play will commence on the first nine holes in the late spring of 1961. The last nine holes will be the most difficult to build and will not be ready for playing until the spring of 1962.

A canal will provide water for irrigation for most of the course, but a 750,000-gallon tank will be removed from the city water system and reassembled on the extreme east boundary of the park on a higher elevation of 150 feet to give a water pressure of 40 to 60 pounds on the course. A sprinkling system will keep the course green with half the course being watered every other day. The water which will be used will be pumped out of an open distribution reservoir and into the tank. A set of Rain-Bird sprinklers will apply the water.

The balance of the park is being planned for the following activities:

Play area (softball, tennis, horseshoes, etc.)	40 acres
Youth day camp	15 acres
Bridle path and junior posse practice field	20 acres
Hiking (mountainside)	20 acres
Picnic and camping area	30 acres
Amphitheatre and parking	15 acres

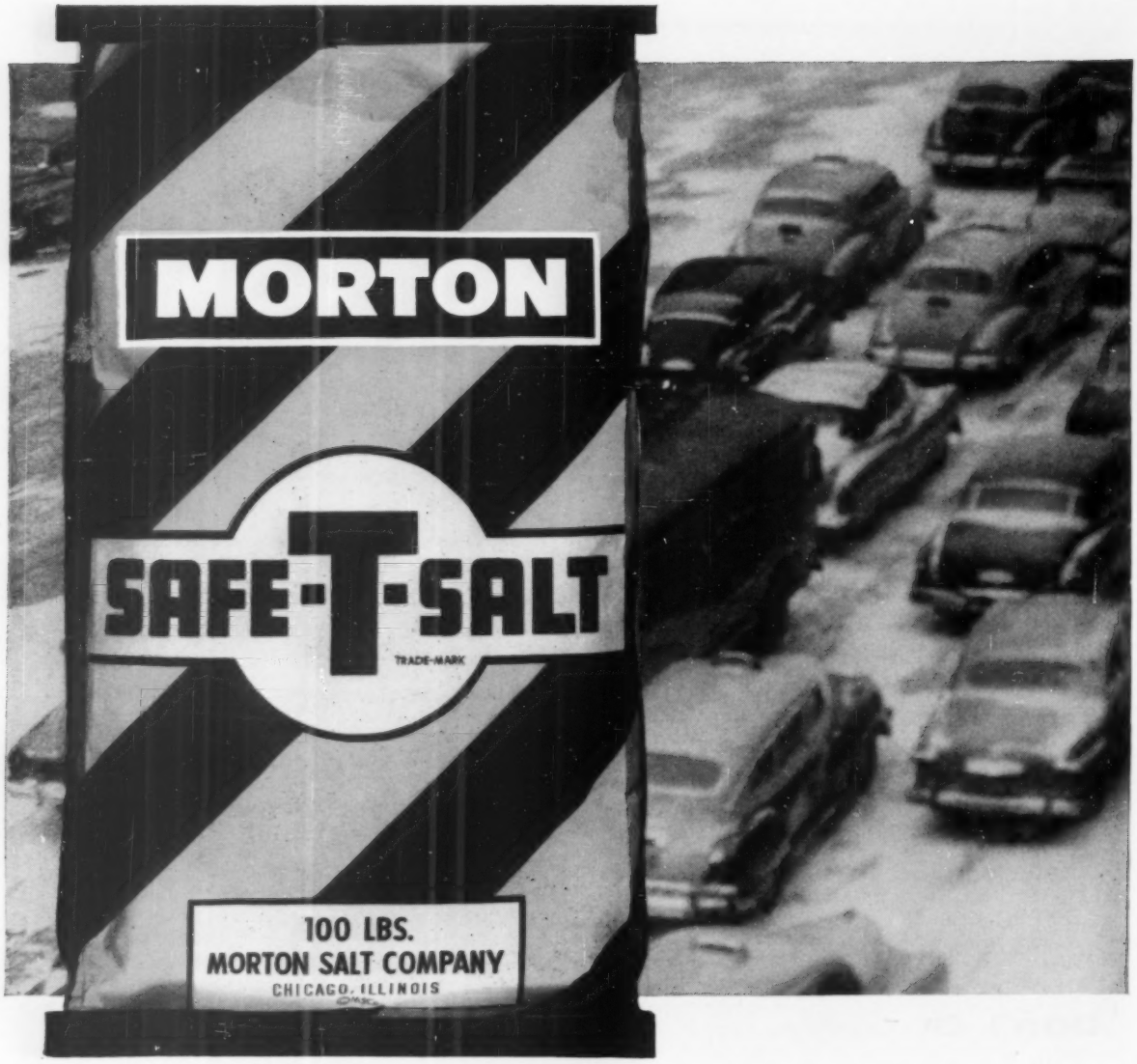
The City Planning Director has been assigned the task of making a master park-development plan that will make maximum use of the land.

The land upon which the course and park will be developed is the largest tract of undeveloped land within the corporate limits. A land development company desires to purchase 60 acres of the park land for a half million dollars; however the land will not be sold. From the west boundary to the east boundary, a distance of approximately 3,000 feet, there is a rise in elevation of 300 feet.

City Manager E. L. Carlsen has recommended to the City Council that this project be financed by revenue bonds for the golf course, and by General Fund budget expenditure for the park development. The total estimated cost will be under $500,000. ◄◄

Giant Aluminum Christmas Tree

Tyler, Tex., has probably the only aluminum Christmas tree in the nation. The tree is 55 feet high with a 10-foot foundation. The pole is of creosoted pine and was a regulation light pole. The decorations consist of 54 stringers of ruffled aluminum foil which stretch from the top of the pole to the ground. The foil is 12 inches wide and of three-ply thickness. There are 3,000 light bulbs in all colors. The tree is topped with a five-point star (not shown in photos) of plaster lath which contains ten 50-watt incandescent lights. Material of the star is perforated so that the wind can go through without harming it. The entire tree is braced by four wooden "skirts" which encircle it from top to bottom in four graduated positions. These skirts keep the stringers firm and separated one from another. The tree is erected each year under sponsorship of the Tyler Chamber of Commerce Christmas Activities Committee. ◄◄



MAKES YOUR STREETS SAFER, YOUR JOB EASIER!

Public safety is the basic reason for salting streets and highways. Morton Safe-T-Salt* is a product named to explain this function to the public. Morton Safe-T-Salt makes your job easier because it constantly reminds the public of the primary reason for salting treacherous pavements and helps promote what you do to reduce the hazards of winter driving.

Designed to meet your specifications, Morton Safe-T-Salt is a screened, graded, economical rock salt that makes your streets and highways safer by ridding them of dangerous ice and packed snow—quickly and thoroughly. Morton Safe-T-Salt gives *immediate abrasive traction* against skidding, *penetrates deep ice* and *quickly melts* the bond between ice and street surface.

Safe, clean, economical—Non-toxic and easy to handle, straight Morton Safe-T-Salt will not clog sewers or leave a rutted dirty pavement as will sand and cinders. Moreover, rock salt *melts more ice at lower cost* at any temperature above 8° F. than any other commonly used ice melting chemical or abrasive.

Available in bulk or 100-lb. bags, Morton Safety-T-Salt also is ideal for stabilizing roads. So order enough now for your winter ice and snow control program. Any Morton Safe-T-Salt left over can be used in your summer road stabilization projects.

*Safe-T-Salt is a trademark of the Morton Salt Company

MORTON SALT COMPANY
INDUSTRIAL DIVISION
Dept. AC10
110 No. Wacker Drive, Chicago 6, Illinois

Trap rock is laid over a coat of RT-8 in the Mt. Holly street program.

Five Days, 75,000 Square Yards

Give Superintendent Jacob Greenwald of Mount Holly, N. J., about five days and he will have a maintenance wearing surface on some 75,000 square yards of the township's streets. For this work, he will use ten men and four dump trucks.

He uses an RT-8 tar applied at the rate of 0.3 of a gallon per square yard under contract. He covers this with ⅜-inch trap rock placed by a Buckeye spreader box secured to the dump trucks. The rock is spread at 30 pounds per square yard. The township's 5-8 ton Ferguson tandem roller compacts the rock chips to the tar. He also has an Oliver ½-yard loader to load the chips from the stockpile into the trucks.

The streets will require resurfacing once every five years on an average. ◄◄

A tandem roller adds the finishing touches.

Don't Overmix Concrete

While it is important to mix concrete enough, apparently it also is important not to overmix it.

A Bureau of Public Roads study involving class 34-E pavers shows that concrete of good quality can be obtained with about 47 to 49 seconds of mixing time, including the time to transfer the concrete from one drum to the other, or 40 seconds of mixing, exclusive of transfer time. This would indicate that the 60-second mixing specification is conservative, since it provides for about 20% more mixing than is actually required under average conditions. As a result, some states have lowered their mixing time on 34-E pavers. New York has dropped requirements from 120 to 75 seconds. Washington State, from 60 to 50 seconds.

The study also showed that compressive strength begins to decrease with a small amount of overmixing, in excess of 67 to 69 seconds, including transfer time. Another study shows that 30 seconds of unnecessary concrete mixing can add about $9,000 per mile to the cost of a modern four-lane concrete surfaced highway. ◄◄

Philadelphia Tests Asbestos Asphalt

An asphalt street surface containing asbestos fibre is being used on an experimental basis in Philadelphia.

Last month, David M. Smallwood, Commissioner of the Department of Streets, directed crews to use the new asphalt-asbestos binder and topping to surface a section between Cumberland and York Streets. They then resurfaced a separate area with the standard asphalt binder and asphalt-asbestos topping.

The asbestos is a product of Johns-Manville Corp. Asbestos-asphalt has been tried in several states throughout the country and is believed to produce a tougher road surface with increased resistance to indentation under heavy loads and high temperature. It is also claimed to have less brittleness under low temperatures with increased flexibility and resiliency and increased resistance to cracks resulting from exposure to extreme weather conditions. ◄◄

What does **Performability** *mean to your fleet operation?*

Your own fleet operation will show real savings and run far smoother with the '61 Lark. Already fleet proven in wide use, The Lark with new improvements and advances has Performability – and here's how you benefit:

Even greater Economy! The all-new Skybolt Six engine, of valve-in-head design and 112 HP, has already shown 17% greater gasoline mileage than Larks used in more than 1000 fleets last year . . . pre-tested and proven in the field by the largest "blue chip" fleet operators!

Even greater Performance! Acceleration your drivers want—10% better at low speeds, 18% better at middle speeds, 35% better at high cruising speeds for safe passing.

Even greater Driver Comfort and Safety! A new recirculating ball steering system and new front suspension make steering 30% easier. Also new for '61—handsome safety-padded dash—increased legroom—smart low-silhouette body styling—increased visibility—oversize bonded brakes! And still those wonderful flat floors, high headroom, big seats, matchless roadability.

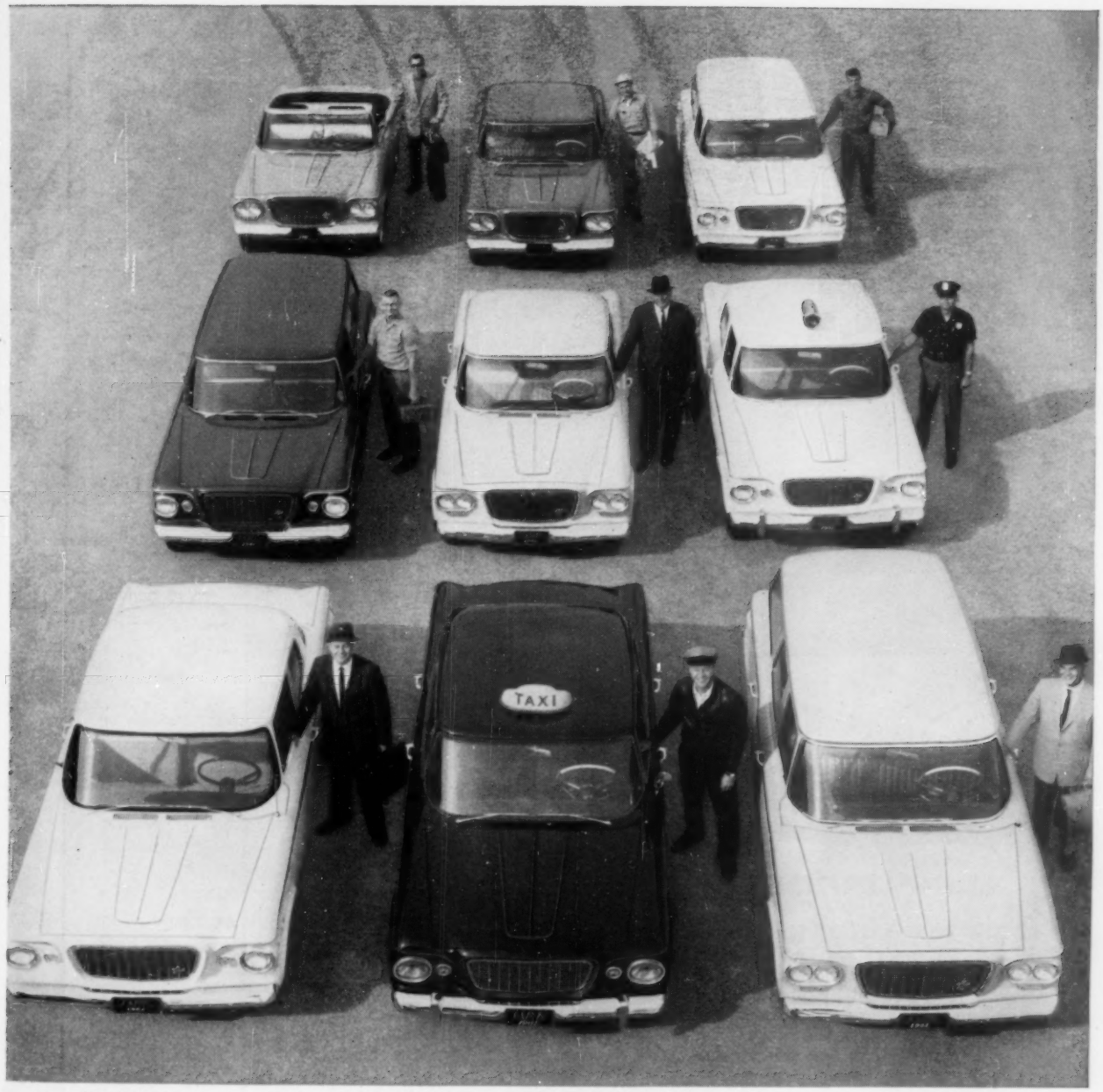
Even greater Maintenance Savings! Fleet records already show The Lark saves ⅓ on maintenance, compared to other cars. But this year new brakes, new larger clutch (for the Skybolt Six) and several servicing improvements (such as a counterbalanced hood) will save you even more.

The Sum Total of 2000 engineering and design improvements, perfected and coordinated, give the '61 Lark unique response, economy, durability. That's '61 Lark PERFORMABILITY. You have to drive it to believe it!

NO CLAIMS, NO GUESSES—THESE ARE THE FACTS

Actual field tests by commercial and government fleets show uniform satisfaction—"Excellent acceleration from standing start, good passing performance"..."Good hill climbing"..."Excellent maneuverability and directional stability"..."Exceptionally good (steering) response and light touch"..."Good clutch and brake action"..."Better roadability than any car I have ever used."
Certified by United States Testing Company.

113" WHEELBASE LARK CHAMP TRUCK 108½" WHEELBASE LARK



YOUR WIDEST CHOICE – A SUPERIOR-PERFORMING FLEET VEHICLE FOR EVERY FLEET NEED!

The new

'61 LARK

by Studebaker

Performability

you have to drive it to believe it!

LET US SEND YOU THE FACTS!

Fleet Sales Division, Studebaker-Packard Corp.,
South Bend 27, Indiana

☐ Send us informative literature only
☐ Have a factory representative call me for an appointment

NAME _____
PLEASE PRINT

TITLE _____

COMPANY _____

ADDRESS _____

AC-10-60-FI

Swing the LOAD instead of the LOADER!

180 SPEED SWING

PETTIBONE

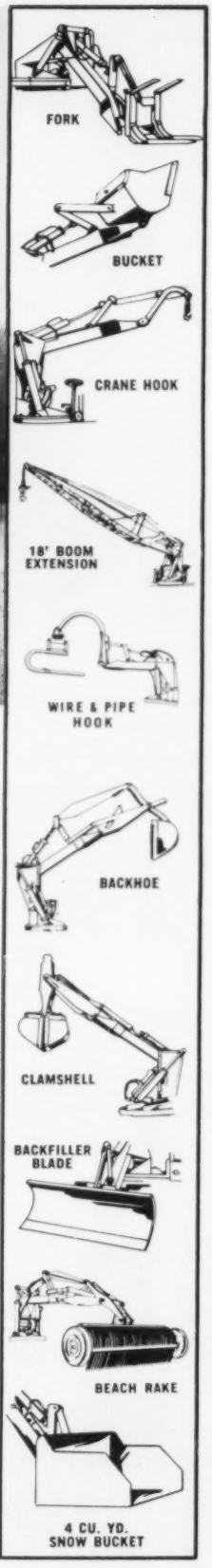
ALL-PURPOSE MATERIAL HANDLER

The Pettibone 180° Speed Swing answers every need on your job schedule because it combines the best features of all material handling equipment in *one* machine. This gives you *all-job versatility*, plus exclusive swinging boom performance.

The turning and maneuvering requirements of conventional loaders are now eliminated by the Pettibone Speed Swing because you swing the load instead of the loader! This means *faster, safer, more efficient handling!*

It cuts your time and labor costs. You eliminate the need for extra equipment investment, all of which adds up to a more profitable operation for you!

Shown above the Speed Swing is working parallel to the shoulder and dumping material over the bank. This eliminates the possibility of the loader tumbling over the bank and endangering the operator. Shown at right, 10 quickly interchangeable attachments (by changing *only* 3 pins) make the Speed Swing the *most adaptable, most versatile* all-purpose material handler today!



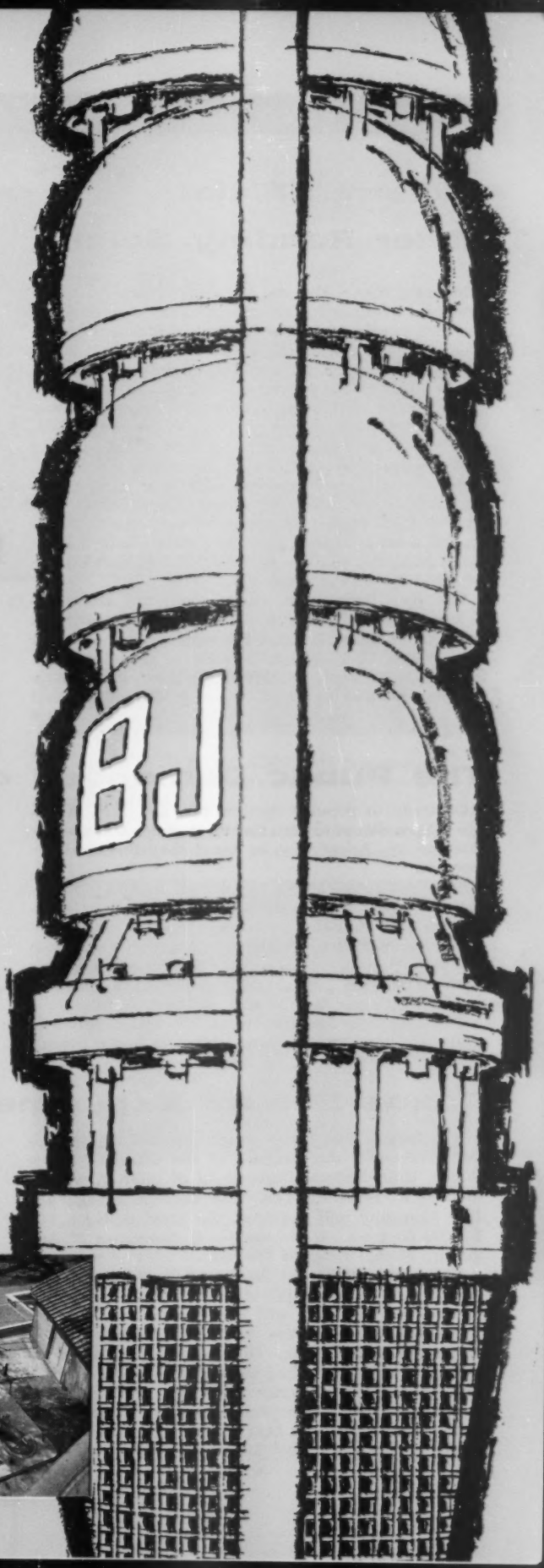
Get the facts on how the Pettibone 180° Speed Swing can reduce your equipment investment, as well as your maintenance costs.

PETTIBONE MULLIKEN CORPORATION

4700 W. DIVISION ST. CHICAGO 51, ILLINOIS

SPaulding 2-9300

Quality *costs less* in the long run!



BJ Submersible Pumps

Nowhere is quality more important than in a submersible pump installation where both pump and motor operate down-hole. And that's where BJ quality pays off!

Sealed for life, no adjustments or routine maintenance is required...no noise, no pump house needed, and there is no danger of vandalism or contamination of the well.

As a pioneer in submersible pumps since 1928, BJ manufactures all three basic components—pump, motor and seal—and offers complete unit responsibility with *the* quality submersible pump. Available in capacities from 20 to 20,000 GPM, heads to 1,800 feet and motors to 450 HP.

BYRON JACKSON PUMPS, INC.
Subsidiary of Borg-Warner Corporation
P.O. Box 70, Lawrenceburg, Indiana
P.O. Box 2017 A, Terminal Annex, Los Angeles 54, California
Offices in Principal Cities

Since 1934, Beverly Hills, California has installed a total of 21 silent BJ Submersibles in some of the most exclusive residential areas in the U.S.

Uniforms Make Meter Reading Safer

Miami's sunny climate and lush greenery, while great for living and playing, sometimes present occupational problems to the Water Department meter readers. John Corlazzoli, a meter reader and chairman of the city's Dinner Day Safety Committee, pointed this out to the committee, stating that some type of well ventilated, light-weight head gear was needed to protect meter readers from the sun as well as from bumps and scratches received while crawling under hedges and ledges to get at some of the meters.

As a result, meter readers now wear plastic helmets, uniforms and safety glasses provided by the city. A thick foam-rubber pad on the top and straps on the sides hold the impact-resistant plastic helmet away from the employee's head. The helmet can be wiped clean with a damp cloth.

The grey, lightweight, durable uniforms are washable and the short sleeve blouses have a department emblem on the sleeve and the employee's name over one pocket. C. F. Wertz, Director of the Water and Sewer Department, considers the new uniforms a real public relations boost for the department as well as an aid to safety. ◄◄

Grey uniforms, plastic helmets and unbreakable sunglasses are the standard dress for meter readers in Miami, Fla. Although they were adopted as a safety measure, they also serve to boost good public relations.

The Public Demanded a Water-Rate Increase

Contrary to popular opinion, Mr. and Mrs. Average Citizen do not always rise up in anger when water rates go up. Apparently, at times they insist on the increase.

Clarinda, Iowa, has a population of 5,900. It has increased 16% in the last decade. Recently, City Manager Walter R. Sales surveyed the city's water receipts and operation-maintenance expenses along with the water bond sinking fund requirements. This showed that the city would either have to increase water rates again or cut back on services.

The 60% rate rise that went into effect only two years ago has been financing extensive improvements to the city's treatment and distribution facilities.

The council felt that it probably would be better to cut back on the services by discontinuing the rather expensive policy of extending mains at no charge. By putting such extensions on a straight assessment basis, the city would thereby avoid a rate increase.

To the astonishment of the city council and Mr. Sales, the public stormed into a council meeting, demanding that the city return to the policy of financing main extensions despite the fact that this would require a rate increase. The council obliged, boosting the water rates an added 25%. ◄◄

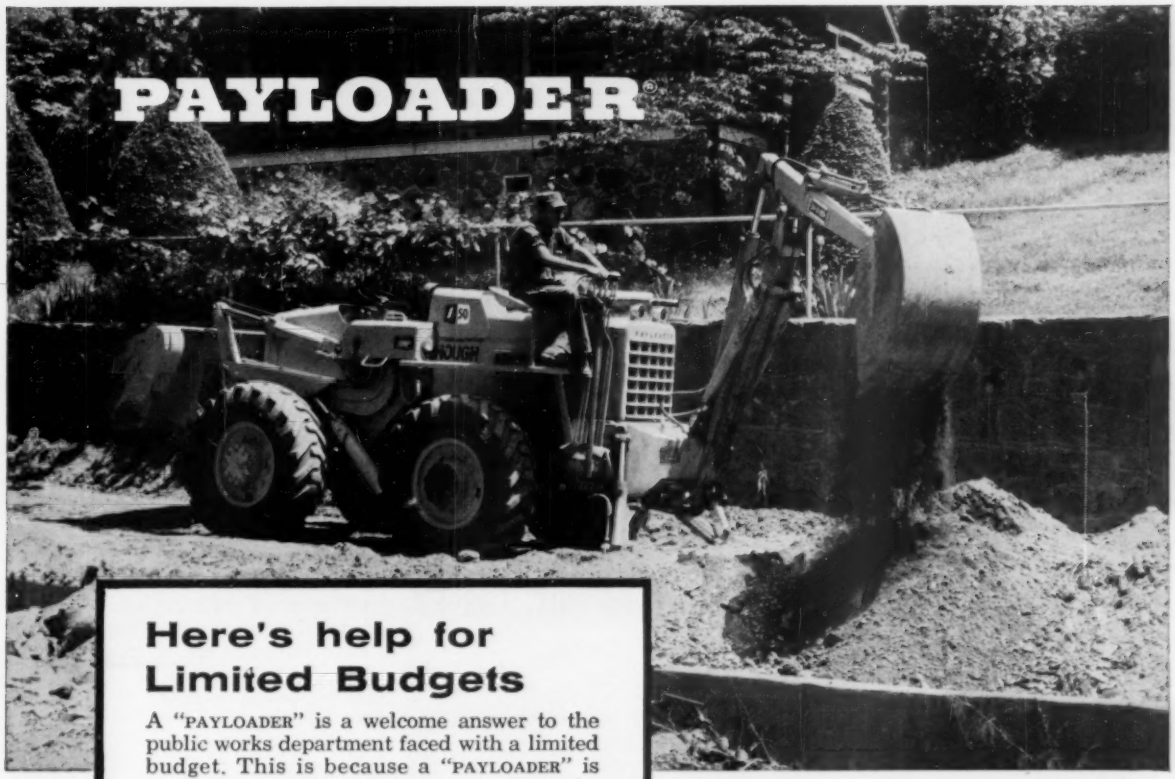
Texas Site for Experimental Water Plant

The first of five saline water conversion plants to be built under the auspices of the Office of Saline Water, United States Department of Interior, will be erected in Freeport, Tex. The Chicago Bridge and Iron Company will construct the plant under a $1,246,250 contract. W. L. Bodger & Associates of Ann Arbor, Mich., designed the unit.

This plant will utilize the long-tube-vertical multiple-effect distillation process, employing a 12-effect evaporator unit, and will use a new technique for avoiding scale formation by use of a suspension of fine solids in the brine. This type of installation involves a series of boiling chambers (effects) that result in greater efficiency by using heat from the vapor produced in the preceding chamber to evaporate more brine in the next chamber. In the Freeport plant 33 Goulds centrifugal pumps will handle the many pumping requirements that are involved.

Expectations are that the Freeport plant will produce fresh water at a rate of one mgd at a cost of less than one dollar per thousand gallons. Further economies are expected from incorporation of the same process in plants designed to produce 15 mgd to 20 mgd.

According to present plans, the Office of Saline Water will contract for the construction of five plants, each using a different method of operation. Three others have been set as to location and type: an electrodialysis process plant at Webster, S. D.; a multistage flash distillation unit at Point Loma, Calif.; and a forced-circulation vapor compression distillation plant at Roswell, N. Mex. The fifth plant, to utilize some type of freezing process, is scheduled to be built somewhere along the east coast. ◄◄



Here's help for Limited Budgets

A "PAYLOADER" is a welcome answer to the public works department faced with a limited budget. This is because a "PAYLOADER" is *naturally* versatile, and also because it can be equipped, economically, with a variety of useful attachments to do *even more* kinds of jobs. Some of these tools are available *only* on a "PAYLOADER" tractor-shovel.

Consider this Model H-50 with a Drott "4-in-1" Bucket on the front and a Wain-Roy Backhoe on the rear. The "4-in-1" can do shovel, bulldozer, clamshell and scraper work — is an exclusive-on-rubber on "PAYLOADER" units. The backhoe can dig trenches, bell holes, etc. up to 12-feet deep — even at right angles to the machine — and can do a variety of crane operations.

Some of the other "PAYLOADER" attachments — costing much less than separate, single-purpose machines — are: bituminous spreader; pick-up sweeper; leaf loader; earth auger; vibratory soil compactor; side boom; rotary, "V" and blade snow plows.

There's a "PAYLOADER" model and size to fit every size of highway, street, sanitary and park department. There is also a nearby Hough Distributor with complete and dependable parts and service facilities, backed by factory service personnel, to keep your "PAYLOADER" investment paying off.

HOUGH®

THE FRANK G. HOUGH CO.
LIBERTYVILLE, ILLINOIS
SUBSIDIARY — INTERNATIONAL HARVESTER COMPANY

HOUGH, PAYLOADER, PAYMOVER, PAYLOGGER, PAYLOMATIC and PAY are registered trademark names of The Frank G. Hough Co.

Model H-50 PAYLOADER with rear-mounted Wain-Roy Backhoe digs trench for water main, and

the Drott 4-in-1 bucket on the front end backfills, loads out excess dirt, cleans up.

THE FRANK G. HOUGH CO.
710 Sunnyside Ave., Libertyville, Illinois
Send bulletin "More Mileage for your Tax Dollar"

Name _____

Title _____

Govt'l Unit _____

Street _____

City _____ State _____

10-B-3

SIMPLICITY OF OPERATION

key to low cost, popular (MB) packer bodies

Compacts all types of refuse—easier, faster

Packer plate pushes out load—safely, quickly

M-B Packer Body simplicity of design and operation can save you hundreds of dollars in lower initial investment, in faster collection, and in lower operational cost. The square, van-type body design eliminates dead weight caused by complicated hydraulic systems and heavy tailgates — allows mounting on low-cost, smaller size truck chassis. The new M-B vertical bulldozer-type plate completes the packing cycle in seconds — pushes out the load just as fast, without raising body. And, you pile up savings from lower operating and maintenance cost because of the smaller truck and simple, trouble-free packing mechanism. There's a size for every need from 14 to 38 cu. yd. See your distributor or write the M-B Corp., New Holstein, Wisc. Dept. AC.

QUALITY MUNICIPAL AND INDUSTRIAL EQUIPMENT SINCE 1907

M-B CORPORATION
NEW HOLSTEIN
WIS.

LINE MARKERS • PACKER BODIES • SWEEPERS

(Continued from page 5)

costs, and 28.8% of the net tax deficit.

Non-taxpaying uses account for 2.6% of the total property-tax income. Of this, municipal property is roughly two thirds, and churches and institutions, about one third.

The study is explained in detail in a report by the Town Plan and Zoning Commission of West Hartford, Conn., entitled, "Land Use and Municipal Finance." The Commission will supply copies to interested officials for $1 each. ◄◄

Why Rate Employee Performance?

Performance on the job is in a real sense the ultimate test of the success of recruiting and testing programs. Often, however, an employee with great ability may not perform as well as another with less. Therefore it is necessary to have some means of measuring an employee's performance.

The advantages are:

1—It gives the supervisor a basis for recommending promotions and making other changes in personnel.

2—It provides a basis, at least in part, for salary advancements.

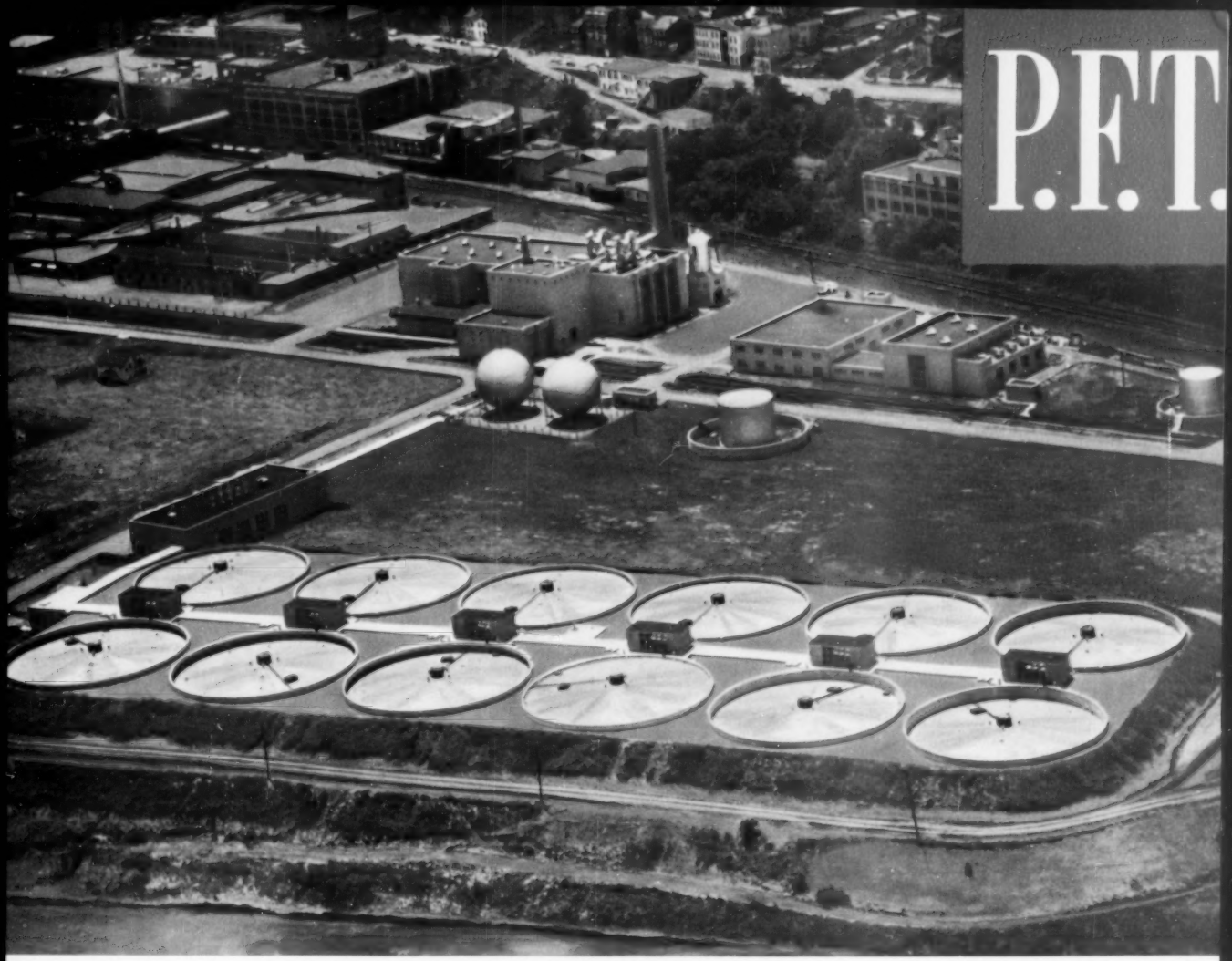
3—It is an aid in improving the quality of supervision for it gives an objective, impersonal basis upon which to base judgements.

4—It provides a basis for constructive criticism which can be a valuable stimulant to improve performance; even more important it provides a rating plan which commands employee respect, tells an employee where he "stands." It eliminates worry and uncertainty and gives employees recognition for work well done.

5—Such a program often indicates areas where in-service training is needed or should such training already be in use, it will give a means of measuring the effectiveness of the training.

In addition there are a number of other advantages in a good service rating program. It may reveal discrepancies or weaknesses in the position classification plan; it may reveal organizational weaknesses; and it may point to a need for better employee relationships. In fact, it would be difficult to find any aspect of personnel administration that would not be improved by a good performance rating program.

MICHAEL E. LESKO
City Personnel Director
Royal Oak, Mich.



Twelve P.F.T. Floating Covers with P.F.T.—Pearth Gas Recirculation on 110′ Digesters at Cincinnati's new Mill Creek Sewage Treatment Plant

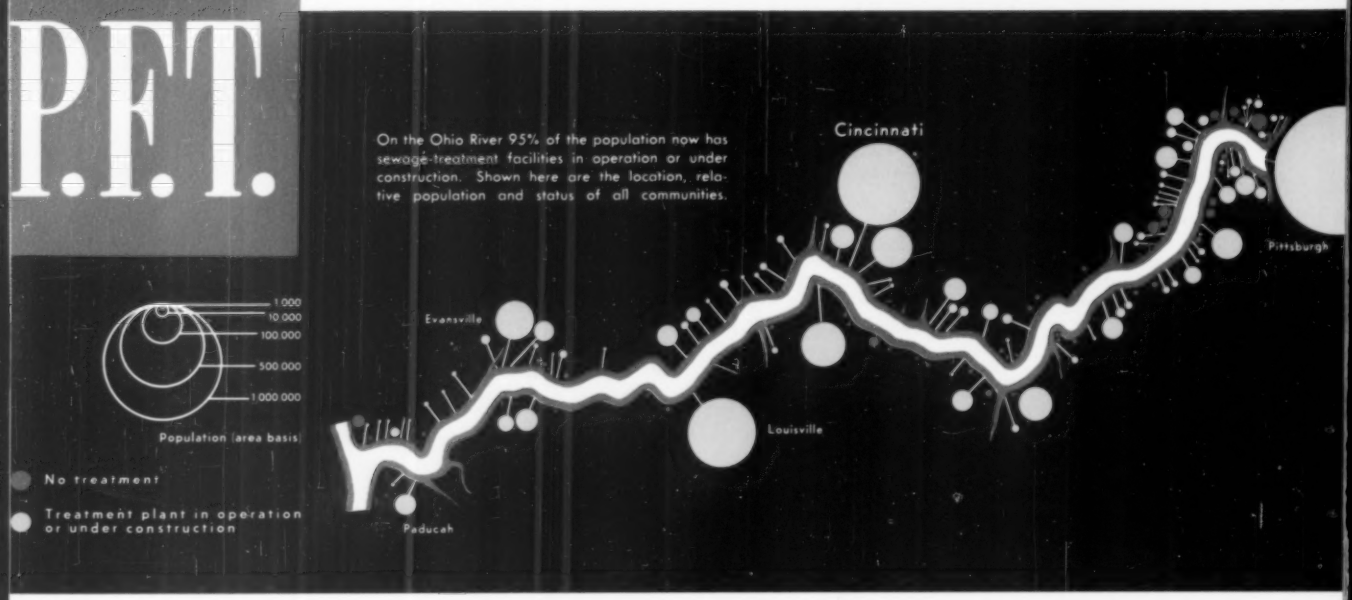
Cincinnati Continues Leadership in Ohio River Clean-Up Program

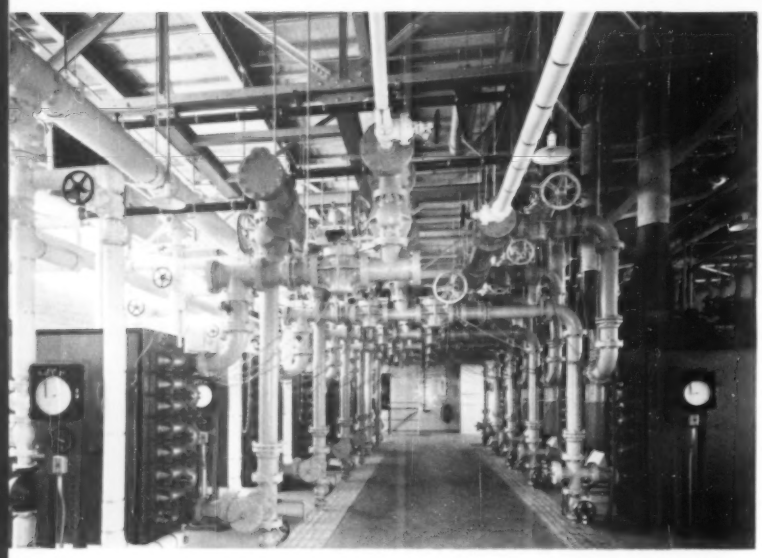
Exalted in song and legend for its beauty, the Ohio River is being restored through the pledged efforts of eight states to keep the river free of pollution.

Leading this crusade under the program of the Ohio River Valley Sanitation Commission (ORSANCO) the city of Cincinnati has constructed three plants: Little Miami, Muddy Creek and Mill Creek. Largest of the plants is the modern Mill Creek plant. This facility with a design flow of 120 mgd is the heart of greater Cincinnati's program which handles not only all wastes from Cincinnati but 26 suburbs and some 2,000 industries.

P.F.T. Digester equipment matches the other facilities at this plant which are blended to make this America's most functionally beautiful and modern plant. Many "firsts" including newly developed laboratory analytical equipment for rapid checks of industrial wastes and closed circuit television giving visual checks of operation of various plant units ensure the most effective treatment. With this plant now in service, Cincinnati is truly leading the way to a renewed beautiful Ohio.

P.F.T.





Battery of P.F.T. Heat Exchangers and Heater Units.

Entire project including innovations in plant control under the direction of Arthur D. Caster, Sewage Disposal Engineer

Cincinnati's entire sewage treatment program was designed by the consulting engineering firm of Havens and Emerson

Depicted on the above map are the locations of sewage treatment plants safeguarding the Ohio River. P.F.T. is proud to have a major part in this vital program with equipment at a large number of these plants.

Cincinnati's Mill Creek plant, ORSANCO'S leader, embodies "leadership equipment" designed and manufactured by P.F.T.

Here at this modern plant are twelve P.F.T. Floating Covers on 110′ digesters with P.F.T. aluminum metal clad insulated roofing. Six of these controlled digesters are equipped with P.F.T.—Pearth Gas Recirculation units with the balance arranged for future Pearth installation.

Shown in the photo at the left is Cincinnati's "Hall of Heaters" with four P.F.T. 1300S Shell and Tube Heat Exchangers, two P.F.T. 1000 and five P.F.T. 1500 Heaters and Heat Exchangers. Also located adjacent to the digesters are twelve additional P.F.T. 500 Shell and Tube Heat Exchangers.

These 23 P.F.T. Heat Exchanger units are integrated to form an effective, flexible heating system ensuring accurate temperature control for the 12 digesters. P.F.T. Gas Safety Equipment ensures safe utilization of sewage gas produced.

waste treatment equipment exclusively since 1893

PACIFIC FLUSH TANK CO. 4241 RAVENSWOOD AVENUE, CHICAGO 13, ILLINOIS

PORT CHESTER, N.Y. • SAN MATEO, CALIF. • CHARLOTTE, N.C. • JACKSONVILLE • DENVER

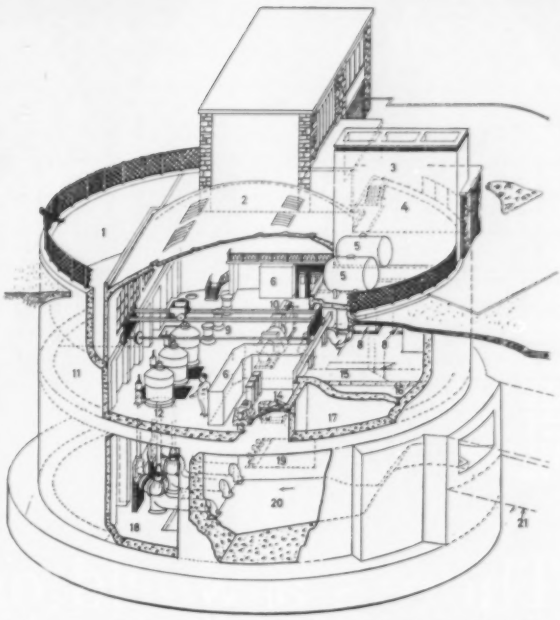
Area Considered in Pump-Station Design

The British holiday town of Weston-super-Mare decided to build a combined sanitary and storm sewage pumping station underground to protect the character of adjacent properties. The circular reinforced concrete structure, 100 feet in diameter by 50 feet deep, houses pumps, grinding machinery and generators. Sewage enters the station by means of an eight-foot-diameter sewer.

The two separate pump wells, one serving the sanitary or dry weather flow pumps and the other serving the storm water pumps, are connected by an overflow weir. When the dry weather or sanitary flow exceeds pump capacity, the pumps will automatically stop, permitting sewage to overflow into the storm flow chamber, and the larger pumps will take over. The maximum pumping rate is approximately 130 mgd.

Grinders located downstream of an overflow weir set at 1½ times normal daytime flow or three times dry-weather flow provide full maceration of solids. Flows exceeding 1½ normal daytime flow will pass over the weir without maceration, but a four-inch inclined screen will prevent solids in this flow from passing over the weir. When the flow subsides these intercepted solids fall back into the sanitary or foul-water flow and pass through the grinders.

Local feed lines supply electric power to the pump motors. However, in the case of a power outage, an alternate supply consisting of two diesel-alternators, each of sufficient capacity to run the storm-water pumps at maximum speed, will take over. ◄◄



Diagrammatic layout of Weston-super-Mare pumping station. KEY: 1, light well; 2, concrete barrel vault; 3, ventilating shaft; 4, staircase leading to comminutor well (dotted); 5, diesel storage tanks; 6, control panels; 7, silencers; 8, coolers; 9, dry-weather-flow pump motors; 10, diesel alternator seats; 11, workshop; 12, storm-water variable-speed pump motors; 13, induction regulators; 14, capacitors; 15, mess room; 16, mezzanine floor; 17, air shaft to sump; 18, pump chamber; 19, dry-weather-flow sump (dotted); 20, storm-water sump; 21, culvert (shown dotted).

Los Angeles to Test Purified Sewage As Water Source

A 2½-year regional program of water reclamation tests will be conducted by the Los Angeles County Flood Control District personnel at the city's Hyperion Sewage Treatment and Disposal Plant.

These tests primarily will develop information on the technical feasibility and costs of reclaiming water for public use from sewage.

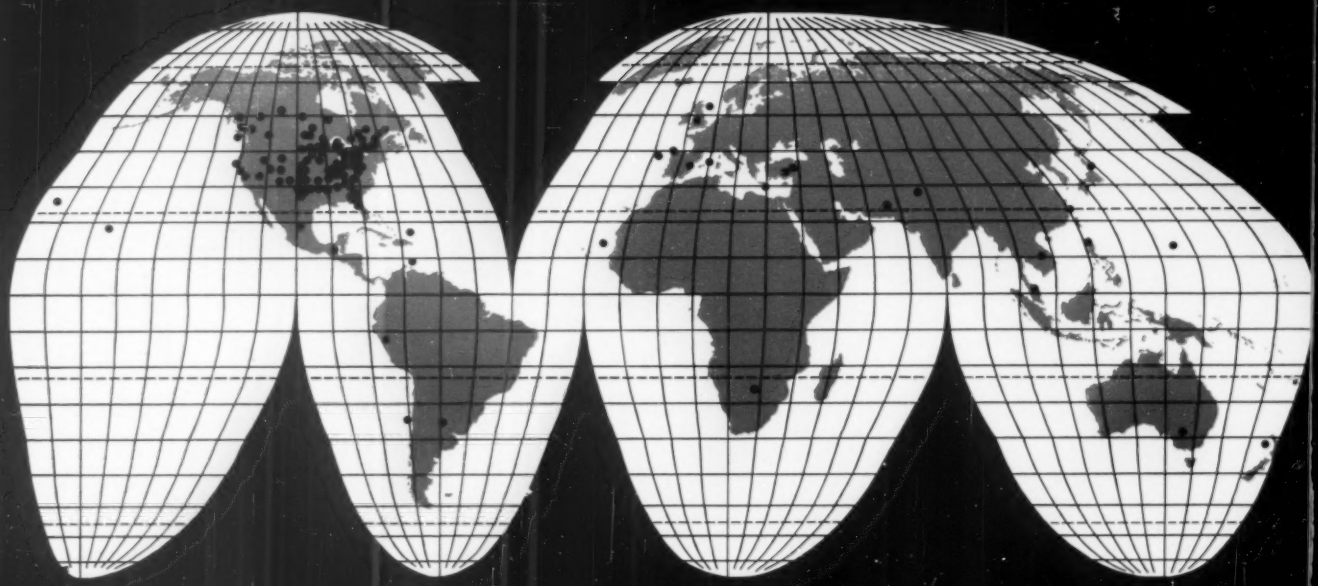
Ground water replenishment apparently offers the greatest potential usage of the reclaimable water. A report made in November 1958, by H. E. Hedger, then chief engineer of the Flood Control District, and by A. M. Rawn, then chief engineer of the County Sanitation districts, pointed out that 86% of the 280,000,000 gallons in the county deemed to be reclaimable water source flows in the sewers of the city of Los Angeles.

A major operation by the Flood Control District was the use of test basins utilizing effluent from the Hyperion Treatment Plant from December 1954 to January 1958. Satisfactory results involving ground water replenishment were obtained by using slow sand filters and injection wells, but suitable areas for such sand filters are presently disappearing because of the development of the Los Angeles International Airport.

From the latest phase of its experience the District found that rapid sand filters require less space and that injection wells could be supplied for at least limited periods with reclaimed waters without clogging. This test will be amplified in the new program. The CFCD said it was helped in the previous tests by the "invaluable advice and suggestions" provided by the Bureau of Sanitation of the LA Board of Public Works.

A report adopted about a year ago by the Los Angeles Board of Public Works asserted that large amounts of water can be reclaimed from sewage at Hyperion and at a plant which could be built at Whittier Narrows, and that smaller amounts could be reclaimed at other plants located near trunk sewers and spreading areas. The report urged construction of a 10,000,000-gallon-a-day plant.

The Hedger and Rawn report predicted that substantial volumes of reclaimed water will be needed by about 1965, while the earliest date of additional imported water supplies is about 1975. Thus a period of some ten years will elapse during which supplementary water sources must be used. ◄◄



There's a world of service available

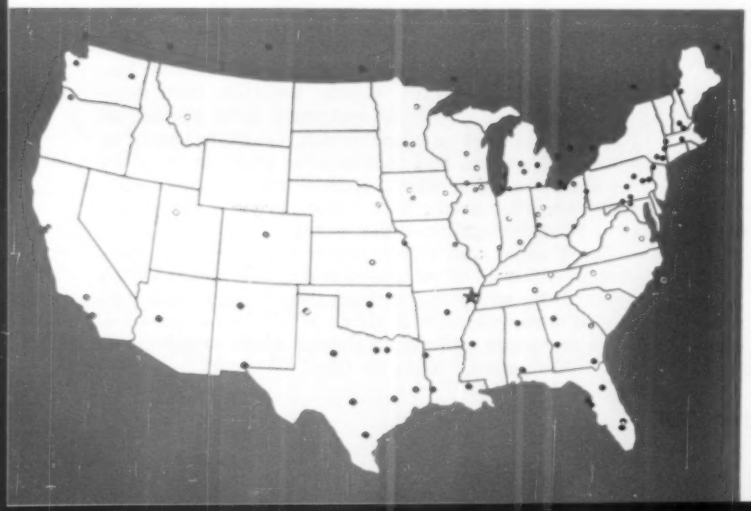
when you specify *LAYNE*

PUMPS • WATER WELLS • WATER TREATMENT

Any service is only as good as its availability when you need it.

Layne service for *any* pumps, wells, water systems and water treatment for Industry—Municipalities—Agriculture is available throughout the world, 24 hours a day. The vast network of Layne Associate Companies with over 75 years' experience, trained personnel and quality Layne replacement parts, assure prompt and complete service wherever you may be located. Industrial Sales Representatives in major cities. Write for Layne Service Bulletin 100.

Layne complete water services include: initial surveys • explorations • recommendations • site selection • foundation and soil sampling • well drilling • well casing and screen • pump design, manufacture and installation • construction of water systems • maintenance and service • chemical treatment of water wells • water treatment • all backed by Layne Research.



Layne SINCE 1882 — WORLD'S LARGEST WATER DEVELOPERS

LAYNE & BOWLER, INC., MEMPHIS

GENERAL OFFICES AND FACTORY, MEMPHIS 8, TENN.

LAYNE ASSOCIATE COMPANIES THROUGHOUT THE WORLD

Sales Representatives in Major Cities

The tractor has a major job compacting and levelling the refuse brought to the site.

Sanitary Landfill Is a Money Maker

When the Chicago suburb of Highland Park switched forms of government a few years ago, adopting the council-manager system, the old open dump went into the discard, along with its old commission form. The benefits have been substantial.

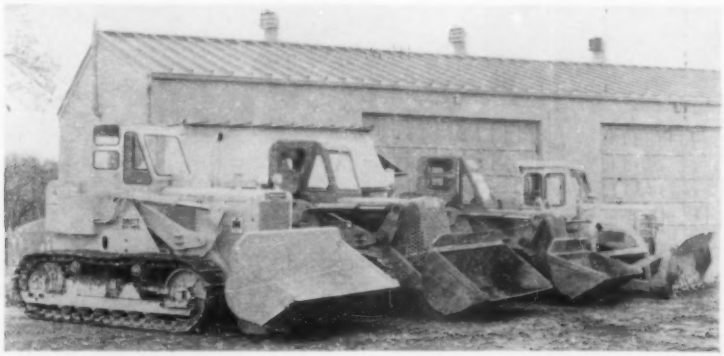
The replacement of the open dump by the sanitary landfill has meant, first, the disappearance of a malodorous, combustible system that was an offense to the 26,000 people in the community and a potential physical danger. However, in addition, it has meant an income of $48,000 that helps keep the general tax from rising unnecessarily here.

The city council selected a 70-acre landfill area on the city's west side. The fill site is a slough underlain with clay and gravel. Four adjacent municipalities, Lake Forest, Deerfield, Glencoe and Highwood, have entered into agreements with Highland Park to use the area for disposal purposes. The first three pay 45¢ per cubic yard of refuse contributed. The fourth, part owner of the tract, pays 10¢ per cubic yard.

The city maintains a four-man crew to keep the fill area in good condition. They follow the familiar practice of opening a trench, 50 feet wide, to a 30-foot depth, depositing the refuse in the trench, levelling and compacting it by tractor, and then covering it daily. When the full 30-foot height has been reached, the compacted sections are topped with a final layer of excavated earth, two to four feet thick, and left undisturbed for a year. The crew then applies top dressing, seeds it and produces an attractive grassed area. Four International crawler tractors, three with Drott TD-15 Skid Shovel buckets, are assigned to work the fill area.

In addition to dumping fees, the city earns $3,300 per year by charging private refuse collectors for garaging facilities. The charge per truck is $15 per month. The crew also augmented city revenues by about $1,000 through salvaging scrap metal from the refuse loads, and another $2,000 by selling excess excavated earth to contractors for fill. City Manager Snyder estimates that the fill area has a life of about 12 years. He expects to add a second lift of eight to ten feet. This will raise the entire area above flood level.

Two years ago, Highland Park won nationwide honors by a citation from the National Municipal League as an All-America City. ◄◄



Four tractors, three with front-end buckets, do the work at the sanitary fill site.

for setting meters
in confined locations...

USE MUELLER®
ANGLE METER STOPS
COUPLINGS

■ Two fittings; a Mueller Angle Meter Stop and Angle Meter Coupling, are the only fittings required to complete a meter setting in a tight location.

With the new combined O-ring seal — ground key seal design in all Mueller Meter Stops you are assured of a positive, double seal against leakage which might result from piping stresses on the stop body.

A complete range of sizes is available with either copper coupling or iron pipe threads.

Write for complete information and specifications.

MUELLER CO. SINCE 1857 QUALITY — LEADING the Water and Gas Industries

MUELLER CO.
DECATUR, ILL.

Factories at: Decatur, Chattanooga, Los Angeles
In Canada: Mueller, Limited; Sarnia, Ontario

New Trash Baskets in Philadelphia

Philadelphia's Spring clean-up drive got a boost last April 20 when a new type of attractive litter basket began appearing on streets in the center of the city.

Attached to street light poles, they are smaller and more compact than those now used at intersections. Street Commissioner David M. Smallwood said 170 (with 150 more coming) will be placed between intersections with about two on each side of the block.

Trial Basis

Smallwood said the new baskets are being put up on a trial basis and, if they prove effective, they will be extended to other parts of the city.

"We hope the use of colorful receptacles," said Commissioner Smallwood, "will attract pedestrians to use them at all times and thus keep most of the litter off the streets and sidewalks."

The baskets are 24 inches high and 12 inches in diameter and have a high gloss green paint. A metal plate having a cartoon illustration and the slogan "Don't be a litterbug" is attached to each one.

When fixed to the light standard, the bottom of the basket will be about two feet off the sidewalk. The baskets were supplied by Howard Metalcraft Co., Emmaus, Pa.

The large baskets at intersections will be maintained because larger receptacles are required at corner locations. ◄◄

Philadelphia's new mid-block trash baskets are bright green and convenient.

Plows Start with Four Inches of Snow

In Council Bluffs, Iowa, salt is the basic material that the city uses to keep streets open during a snow storm. Salt spreaders go out as soon as snow starts to fall to prevent its freezing and packing to the pavement. However, when the depth reaches four inches, snow plowing starts.

In residential areas, truck-mounted plows push the snow to one side, opening up the way for traffic. For this work, the city uses a pair of F-700 Ford trucks, one with a Wausau model B-35 plow, and the other with a Henke model SR-57 unit.

In the business districts, the city windrows the snow to the center of the street with its two L-W Adams and Galion motor graders. A SnoGo then picks it up and loads it into trucks to be hauled away.

To implement the salt-spreading, the city uses five truck-mounted salt-spreaders. Four are the small, demountable tail-gate units and one is a 4½-yard Baughman type K-46-SE spreader. The city in the past has been using #7 rock salt shipped in 100-pound bags at $18 a ton. Curently arrangements are under way to utilize salt shipped in bulk at $12.80 a ton.

The difficulty of making a firm budget for snow removal can be demonstrated from last year's figures. In the 1959-60 budget City Manager Paul L. White allowed $17,000 for snow removal; however, the city had a particularly bad winter and overspent its budget by $43,000. ◄◄

This big SnoGo blower makes short work of the snow windrowed to the center of this downtown street.

What Limited Slip Differentials Mean To The Sheriff of Duval County

For emergency vehicles that can't *afford* to be stuck—police and fire department cars, service cars and light utility trucks—you just can't beat the rugged, all-weather dependability of a limited slip differential.

Read this excerpt from a letter received by Dana Corporation from the Sheriff of Duval County, Florida:

". . . our cars patrol the rural area of Duval County as well as the paved roads, and it would be impossible to travel in some of these areas with conventional rear ends. Our patrols are constantly driving in sand and mud, as well as in woods where there are no roads at all—just paths—and we feel that without the limited slip differential this would be impossible.

"We have limited slip differentials on the 1959 Chevrolets in use in our Traffic Department and we are very satisfied with their operation.

"We lease the cars each year, on a competitive basis. Our specifications for the last two years, and for the coming year, have included a limited slip differential."

(*Signed*) Dale Carson, Sheriff
of Duval County, Florida

Make sure the next cars or light trucks you buy are factory-equipped with limited slip differentials, the differentials that shift power instantly to the rear wheel with the greater traction!

WRITE Dana for free booklet describing the benefits of this positive traction differential—and how it can help you.

DANA Spicer

DANA CORPORATION
Toledo 1, Ohio

SERVING TRANSPORTATION—Transmissions • Auxiliaries Universal Joints • Clutches • Propeller Shafts • Power Take-Offs Torque Converters • Axles • Powr-Lok Differentials • Gear Boxes • Forgings • Stampings • Frames • Railway Drives

Many of these products are manufactured in Canada by Hayes Steel Products Limited, Merritton, Ontario

Waltham's Fire Activities

One of two new 1,000-gpm Mack units added to the Waltham, Mass., fleet of eight Mack pumping engines.

The pumping engine shown here features a 300-gallon booster tank and extension ladders. It is one of two 1,000-gpm pumpers delivered to the Waltham, Mass., Fire Department.

Our apparatus consists of three 1,000-gpm triple combinations, three 750-gpm, two 500-gpm engines; and a Pirsch 65-foot and an 85-foot aerial ladder.

In 1959, there were 313 bell alarms and 879 still alarms, and a total fire loss of $280,657. Number of feet of hose used were 66,000 of 2½-inch, 17,250 of 1½-inch, and 126,500 feet of ¾-inch booster hose.

JOHN F. STEEDE
Chief of Department
Waltham, Mass.

Narrow Radio Band for All Cities by 1963

In order to provide additional channels for public safety and private two-way radio communications systems, the Federal Communications Commission began a channel splitting program in 1958. By November 1, 1963, all radio users must modify their equipment to conform to new technical specifications.

Partial modification for most public safety radio users was required by August 1, 1960. Most police, fire, highway maintenance, and forestry users have already reduced transmitter deviation to plus or minus five kilocycles. The present standard is plus or minus 15 kilocycles. Excepted from this rule are those public safety users licensed to frequencies below 39.98 megacycles and those licensed between 46.54 and 46.98 megacycles.

Full compliance with the split channel specifications by all users is required by November 1, 1963. In addition to the reduction in transmitter frequency deviation, the split channel specifications call for an increase in transmitter frequency stability from .01 to .002% in the 25-54 mc frequencies and from .005 to .0005% in the 144-174 mc frequencies. The third requirement is the inclusion of a low-pass audio filter in the transmitter after the modulator stage.

While the conversion of receivers to split channel requirements is not legally required, this step is recommended to prevent interference from new users who will be assigned to the newly created adjacent channels.

To meet the requirements, modification depends on the make and age of the equipment. Much of the equipment manufactured since 1949, for example, already meets the higher stability requirement if originally supplied with oven-type crystals.

Conversion of receivers to split channel requirements again varies in complexity with the type and age of the equipment. For example, all Motorola mobile and base station receivers built since 1949 can be converted by replacing the sealed Intermediate Filter and by adding a few minor components.

General Electric models since 1955 can be converted by changing the high IF transformer assembly on a swap replacement basis at a nominal charge. Equipment made prior to GE Progress Line (1955) dating back to 1945 is converted by changing three component parts in the high IF transformer assemblies and sliding the IF coupling coils together in the slots provided.

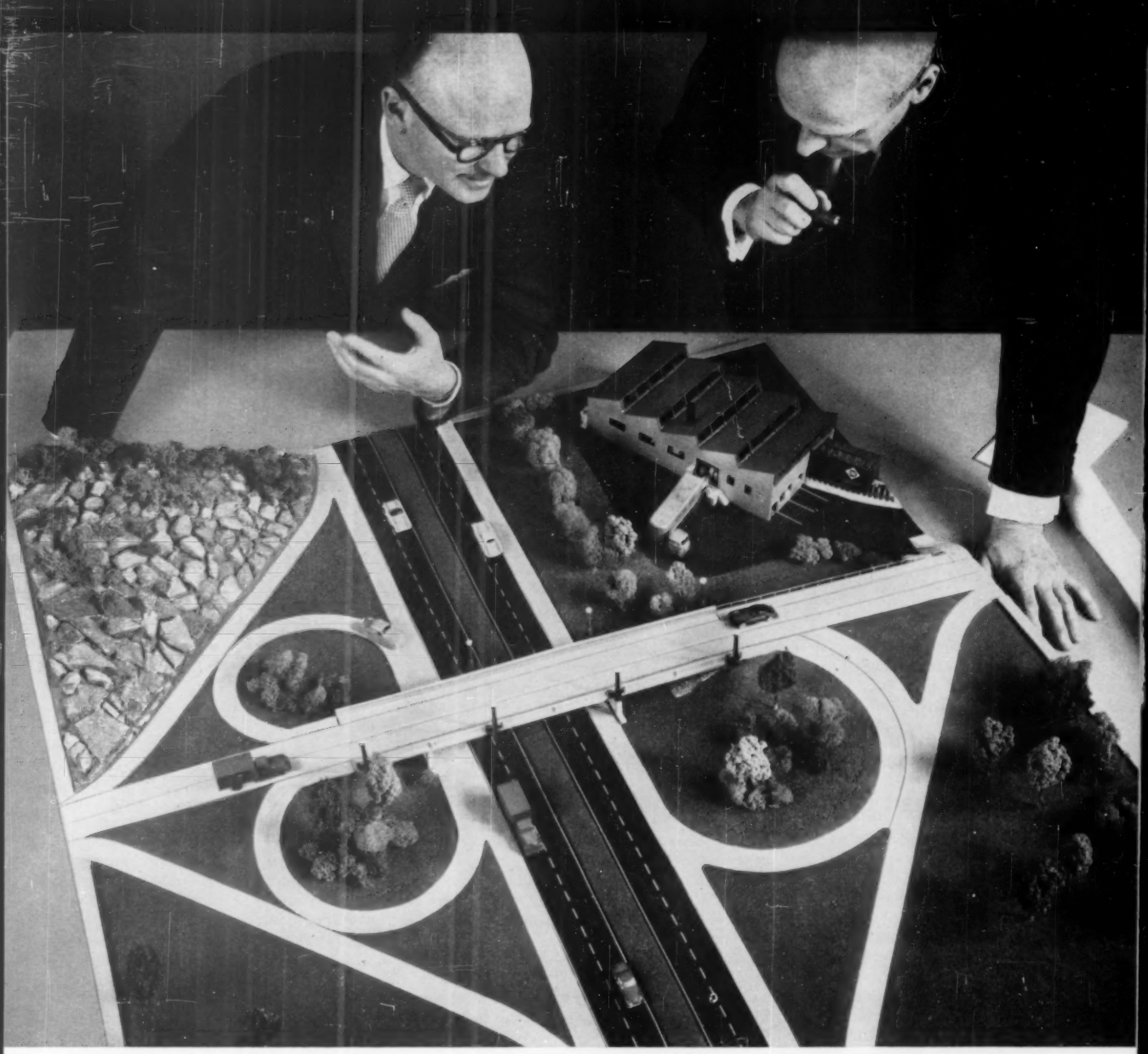
Depending on the age and type of equipment in use, a municipality would do well to use this opportunity to consider equipment replacement with new transistorized gear rather than modifications. ◄◄

Efficient Address File

The Police Department of the City of Homewood, Ill., is using an Acme Visible Records System with considerable success. Previously the Police Department kept a record of all residences on 3x5 cards, filed by address. However, whenever an address search was made, quite a bit of time was consumed in the 3x5 card filing system.

With the visible records, a few seconds produces the record. A file of residents, by address, has many uses. One page has been set aside with red marker, bearing phone numbers of all local hospitals and available physicans.

MELVIN K. MEYER
Chief of Police



When it comes time to appoint a trustee or fiscal agent for revenue bonds, The Chase Manhattan Bank is at the service of state, county and municipal authorities. Chase Manhattan has the staff and experience to handle this function as trustee or fiscal agent in cooperation with banks in the areas where the projects are located. For complete details write: Corporate Trust Division, The Chase Manhattan Bank, 40 Wall Street, New York 15.

OUR MUNICIPAL NOTEBOOK

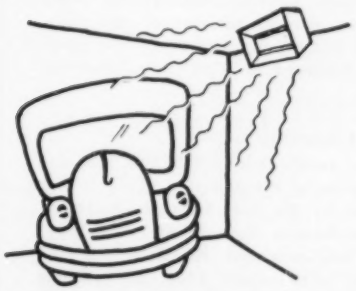
A PARKING-METER SERVICE TRUCK

. . . is currently in use in Miami Beach, Fla., and also in Atlanta, Ga. The Miami Beach truck uses a Reading Body Works utility body mounted on a Ford F-250 ¾-ton chassis. It has six watertight compartments, and is designed so that the doors also serve as workbenches. Atlanta uses a Ford Courier panel-type delivery truck with a special glass panel added to each side for all-around visibility.

* * *

QUICK STARTS IN WINTER

Rochester, N. Y., has placed gas-fired, infra-red space heaters in its east-side truck-storage garage in order to start trucks quickly in winter. The heaters have been placed so that two trucks sitting side by side will have motors adequately warmed by one 3,000-BTU



unit installed at ceiling height. The equipment utilized is Van Dorn Infra-Red heaters, thermostatically controlled, with automatic electric glo-coil ignition.

* * *

BIG REFUSE CONTAINERS

. . . in the small city of Borger, Tex., population 20,000, has been an investment that has yielded big dividends. The city owns 60 Dempster-Dumpster boxes varying from 10 to 12 cubic yards, and has two GMC trucks with hoists to do the dumping. The city charges each market, apartment house, hotel, or other establishment using the containers $20 per month, which includes two collections per week. The amount will amortize the box over a six-year period. If several firms use the same Dumpster box, the charge is pro-rated on the basis of the contributed refuse, with an average combined charge of $60 per month; the city empties these boxes six times per week. The city also services 12 boxes owned by various schools, charging $1.25 per dumping. The city services about 40 boxes daily.

* * *

PARK-SCHOOL PROGRAMS

. . . are slowly growing, to the benefit of both. Richmond, Calif., has a joint program of city park and school playground facilities. Fort Lauderdale, Fla., has a city-school coordinating recreation committee. Livingston, N. J., has a mutual program of cooperation that makes use of school playgrounds during the summer months.

* * *

PRIVATE WEATHER FORECASTS

. . . mean that snow fighting equipment is on the street at the most effective moment in Appleton, Wis. Outagamie County has retained Murray & Trettle, Inc., consulting meteorologists, Skokie, Ill., to provide early warnings of impending storms. These warnings are made available to the city since it pays over half the county tax.

* * *

MUNICIPAL BOOKKEEPING

. . . in Weston, Mass., requires only one machine to perform a multitude of duties. J. Ward Carter, town accountant, utilizes a machine that combines a numerical keyboard with a typewriter. The unit his department uses, a National Cash Register Model 31, performs accounting operations such as:

- *billing real-estate taxes.*
- *appropriation accounting*
- *monthly report of appropriations*
- *poll tax and excise tax*
- *motor-vehicle tax*
- *water works accounts*
- *municipal payrolls*
- *other cash disbursements*

If you want more information on these topics, or any other municipal problems, drop a note to:

The Editors
THE AMERICAN CITY
470 Park Avenue South
New York 16, New York

TWENTY LOADS IN ONE TRUCK

. . . is the way El Paso's sanitation crews now haul brush. Superintendent Edward F. Muckelroy equips each crew with a dump-truck body having a 12-foot platform, six-foot sideboards, and a cover. He also gives them an Asplundh brush chipper that not only cuts the brush to small chips but loads it. The chips go to El Paso's sanitary fill without causing any difficulty.

* * *

A RESERVOIR ROOF OF TIMBER

. . . . is as modern as tomorrow if it is fabricated according to new, modern methods. Beaverton, Ore., placed a timber dome on its 75-foot-diameter reservoir, using a series of triangles, divided by 2x4 arching headers spaced at 2½-foot intervals to make up the framework. This was a design by Timber Structures, Inc., with details developed by engineers in the Beaverton Water Board.

* * *

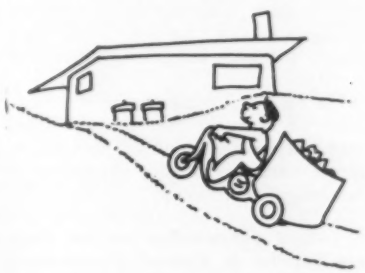
TO CLEAN AROUND PARKED CARS

. . . Ocean City, Md., uses a redesigned, blower-type Tarrant Litter-Getter with an extension hose. This is placed on a swivel over the cab of the truck so that the hose will reach over the tops of cars. An operator guides the nozzle to pick up the debris. The attachment was developed by T. Earl Pierce, city clerk.

* * *

MOTOR-SCOOTER COLLECTION

. . . of refuse has proved to be the way to cut costs, particularly in areas with large lots and long, winding drives. In Lincoln, Nebr.,



a private refuse collector equipped his crews with Cushman Truckster scooters. Each unit uses approximately $1 of gasoline a day. ◄◄

Threatens Tax-Free Status of City Bonds

The U. S. Conference of Mayors warns that the Treasury Department has moved to jeopardize the market for state and local securities. The Department on August 18th issued proposed regulations under the Life Insurance Company Income Tax Act of 1959. The proposed regulations fail to recognize the immunity of state and local bond income from taxation by the federal government.

The United States Conference of Mayors was joined by eight other state and local governmental organizations in urging the Commissioner of Internal Revenue and the Secretary of the Treasury to amend the proposed regulations and avoid litigation which would throw a cloud over the entire State and local bond market.

The present situation grew out of the actions by Congress in 1959 to revise the federal income tax law with respect to life insurance companies. The House Committee on Ways and Means proposed a bill which would tax the income from state and local bonds held by life insurance companies.

Modern Trends In Zoning

The weakest point in modern zoning administration is the actions of the boards of appeals. This was emphasized by Hugh R. Pomeroy, director of the Westchester County Department of Planning, in a recent talk to a meeting of the Municipal Law Section of the New York State Bar Association. The error most frequently committed, he said, is that of issuing variances and use permits. In considering variances he pointed out that the difficulty too often arises from the fact that the board looks first at the result sought, then in effect, arrives at a judgment as to whether it is good, not bad, or bad, then backs up and tries to justify the conclusion.

He recommended that the procedure of such boards be separated into successive steps on an appeal for a variance on an allegation of hardship, as follows:

1—Find out whether or not there are peculiar or unusual circumstances involved. On an affirmative finding only would the board proceed to step 2.

2—Ascertain whether or not these

(Continued on page 34)

Air Pollution Control Notes

President Signs AP Bill

President Eisenhower has signed a bill which enables the United States Public Health Service to undertake a two-year study of the problem of automotive pollution. Meanwhile, the motor vehicle registration in this country rose to more than 71,500,000 in 1959.

Deadline Set

Governor Edmund Brown of California has named the members of the newly-created State Air Pollution Control Board and has informed them that he expects a report to the State Legislature by July 1, 1961 on their progress in attacking the automotive pollution problem. The Board has been allotted $500,000 for its work. The members of the Board are Dr. Arie J. Haagen-Smit, professor of bio-organic chemistry at the California Institute of Technology and consultant to the Los Angeles Air Pollution Control District; John C. Spencer, San Francisco attorney and general manager of the California State Automobile Association; Mrs. Michael C. Levee Jr. of Beverly Hills; James Allen, vice-president of the Northrop Corporation; Dr. Julius B. Askew, Air Pollution Control Officer of San Diego County; Theodore Merrill, Long Beach, vice-president of the Western Conference of Teamsters; Dr. John T. Middleton of the University of California at Riverside, an expert on the effects of air pollution on plant life; Dr. John Saunders, dean of the School of Medicine of the University of California; and Harold V. Thompson, a Fresno attorney. The ex-officio members are Dr. Malcolm Merrill, head of the State Department of Public Health; William Warne, director of the State Department of Agriculture; Robert I. McCarthy, director of the State Department of Motor Vehicles; and Bradford M. Crittendon, commissioner of the State Highway Patrol.

Boston's Losses

Metropolitan Boston is suffering a yearly loss of $20,000,000, not counting losses in human illness, because of air pollution. That is one of the findings of a study conducted by Dr. Rolf Eliassen, Professor of Sanitary Engineering at the Massachusetts Institute of Technology, with the assistance of Dr. James L. Whittenberger, Assistant Dean of the Harvard School of Public Health. The report said that present laws and means of control were inadequate to cope with the estimated 2,600 tons of contaminants discharged daily into the Boston metropolitan atmosphere.

Regulation of Industry

Industrial air-pollution-control laws will not be in effect in the San Francisco Bay Area until late October at the earliest, some 18 months behind the original timetable proposed by Benjamin Linsky, Bay Area control officer. Spring hearings on the proposals were held, but no regulation can go into effect until six months after enactment.

New Albany Joins Network

New Albany, Ind., has recently joined the United States Public Health Service's National Air Sampling Network. A high volume air sampler has been installed in the city.

Silver Lining

The old saw about every cloud having a silver lining might even be applied to air pollution—or so it would seem. Dr. Robert D. Boche and Dr. James J. Quilligan, both of Los Angeles, in a report to the Federation of American Societies for Experimental Biology, assert that air pollution may destroy influenza viruses. Their conclusion is based on experiments with black mice. The mice exposed to high concentrations of synthetic smog for two months were more resistant to influenza virus infection than mice not so exposed.

—Prepared by Kenneth Kowald

Keep pace with wide-spread service demands

...hold down labor costs

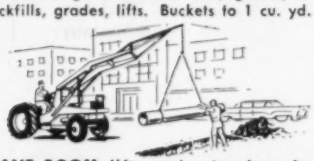
DIGGING • LIFTING

HANDLE WITH CASE *Utility*

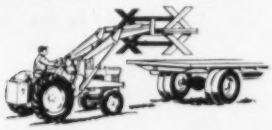
LOADING • CARRYING

CASE 430 *Utility* Backhoe-Loader outworks a crew of hand laborers... yet costs less than one man's wages

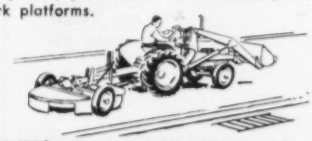
LOADER digs and loads dirt, gravel, snow. Backfills, grades, lifts. Buckets to 1 cu. yd.



CRANE BOOM lifts and sets pipe, forms, boats, bulky articles of many kinds.



PALLET FORK moves construction materials, equipment, park tables and benches, waste, work platforms.



MOWERS, all types. Mows lawns, parkways, fairways, fields, berms and shoulders.

ALL-PURPOSE BLADE finish-grades, cuts ditches, sidewalks, grades streets.

CASE®

J. I. CASE CO., RACINE, WIS.

More and more communities are discovering that the easiest way to handle scattered maintenance jobs on a limited budget is to mechanize such operations with a low-cost Case 430 *Utility* Backhoe-Loader. This versatile one-man rig outworks a crew of hand laborers . . . yet it costs your budget actually *less* than one man's wages!

Big machine features at economy price

You'll find Case 430 Backhoe-Loader a high-output digger that's inexpensive to own, operate, and maintain. It travels anywhere, at speeds to 18 mph, to handle scattered assignments. Backhoe cuts trenches 10′ deep . . . reaches and digs 15′6″ from pivot . . . loads any size trucks . . . swings 180° with foot-pedal hydraulic control for fast cycling.

With both the 1000- or 1200-lb. capacity front-end loader you get exceptional power and stamina for fast, economical handling of dirt, gravel, refuse, snow, and other bulk materials. Tractor-loader maneuvers easily . . . gets full loads quickly . . . lifts half-a-ton to 10′5″ . . . dumps clean with 8′5″ clearance for fast dump-and-go. Quick-change attachments for loader give you lift-and-carry power for all kinds of materials and equipment (see illustrations). You can remove backhoe and be equipped to handle mowers, rear blade, or any of a wide assortment of labor-saving tools.

Free to public officials

To aid you in comparing specifications we have prepared a special file folder containing detailed specifications of all Case *Utility* wheel and crawler tractors and matched equipment. Clip and mail coupon for your free copy — today. Your Case *Utility* Dealer will also be glad to arrange a free demonstration and give you full details on Case financing and lease arrangements.

J. I. CASE COMPANY, Dept. K1560, RACINE, WISCONSIN

Send complete specification folder on all J. I. Case *Utility* wheel and crawler tractors and matched equipment.

Name .....

Address .....

Employed by .....

City ..... State .....

CU-BL-255

COMPLETE LINE OF PUMPERS—500 to 1250 GPM...SQUAD AND HOSE WAGONS...AERIALS 65′ to 146′...COMBINATION LADDER TRUCKS

This is how you measure

Dependability of a Mack gasoline or diesel engine

When it's 15° below and ice forms as the water hits, or whenever fire apparatus must face the extreme demands of fire fighting, that's the time to get the full measure of an apparatus' engine performance.

Does it start dependably . . . have the reserve power for the most grueling operations in any climate and terrain . . . pump hour after hour for as long as needed?

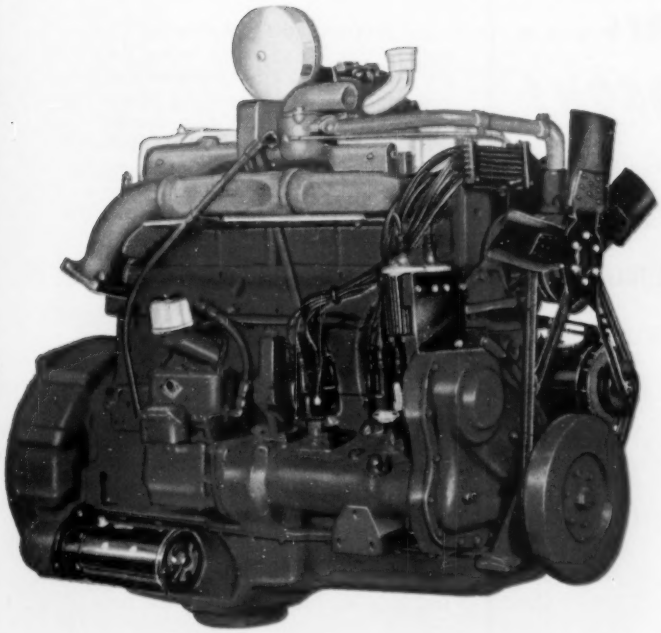
Thermodyne® engines that power Mack fire apparatus, both gasoline and diesel, meet every fire-fighting assigment because they've got the stamina that's made Thermodyne synonymous with dependable, powerful, high-output performance.

This is the stamina that stems from Mack engineering know-how and Mack's many powerplant advances—Everlasting timing gears . . . Durafaced valve lifters . . . full-length water jackets . . . and gear-driven air compressor.

Select your next fire apparatus and the engine that powers it to meet the most demanding assignment you'll ever face, and you'll specify Mack fire-fighting equipment powered by one of the world-famous Thermodyne engines. Mack Fire Apparatus, Allentown, Pennsylvania. Mack Trucks of Canada, Ltd., Toronto, Ontario.

7935

Mack offers three Thermodyne engines to best meet your requirements



Model ENF-707C Gasoline. Largest and most powerful of Mack-built Thermodyne fire apparatus engines, this 707 cu. in. powerplant develops 276 hp. High volumetric efficiency is achieved through opposite intake and exhaust porting and Mack's exclusive combustion chamber design.

Model ENF-540 Gasoline. For smaller apparatus and where the higher horsepower of the 707 cu. in. engine is not needed, Mack offers this 540 cu. in. engine which nevertheless delivers in excess of 200 hp at moderate rpm. It has all the design and engineering features that have made Thermodyne the first name for fire apparatus powerplants.

Model ENDT-673 Diesel. Already proved in millions of miles on the nation's highways, the famed Mack Thermodyne diesel engine is finding increased interest for fire apparatus where its many advantages make it the ideal powerplant. These advantages include: complete absence of an ignition system with its accompanying spark plug, breaker point and coil maintenance complications . . . fuel of lower flash point, hence a safer fuel . . . 24-volt electrical system for quicker, surer starts . . . high torque at low speeds . . . and, for departments where superior fuel economy is important, more work out of less fuel with a diesel engine. Developing 230 hp, the Turbocharged Thermodyne is finding new boosters among fire departments everywhere.

MACK FIRST NAME FOR **FIRE APPARATUS**

(Continued from page 30)

circumstances are such that under the ordinance they would deprive the owner of the reasonable use of the property. Only after an affirmative finding would the board proceed to step 3.

3—Determine what variance is the minimum that will afford relief without being unduly inharmonious with the purposes of the ordinance or detrimental to the neighborhood involved.

Mr. Pomeroy recommended that only after taking all three steps should the board have jurisdiction to authorize the variance.

He pointed out that errors in issuing use permits were caused by a lack of adequate standards to serve as a guide through which to arrive at a sound judgment.

He stated that zoning has a two-fold purpose. The first, as it emerged from the task of regulating nuisances, is that of preventing indiscriminate mixing of land uses. The second purpose of zoning is to encourage the most appropriate use of land. This gives greater vitality to zoning and greater strength to its various measures. Recently, he observed, well-written zoning acts include policy statements in the ordinance itself, thereby guiding those making amendments and executing administrative action. He advised that such a policy statement must be thoroughly honest and provide a solid basis and consistent pattern for the zoning plan embodied in the zoning ordinance and map. He pointed out that this will facilitate the adoption of zoning to changing conditions by amendments within the general pattern of the policy statement.

Mr. Pomeroy listed five major kinds of changes that either justify or call for changes in zoning:

1. Land use occurring differently in timing and location than was expected

2. Changes arising from forces extraneous to the community

3. Changes in the balance among land uses caused by increased population

4. Changes in the manner of land use

5. Changes in governmental development policies

He enumerated the following important trends in zoning today that are of particular importance as: requiring off-street parking space; increasing use of the "area-design" principle in zoning regulation characterized by group arrangements such as garden apartments, shopping centers and industrial parks; the increasing use of specialized zoning classifications for such uses as laboratories and other commercial and industrial and administrative headquarters.

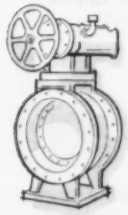
He said that we must look forward to achieving some degree of coordination of zoning in metropolitan areas; to implementing the concept of area design in order to escape the straitjacket effect imposed by traditional zoning regulation; to invoking the police power as a means of preserving open space; and finally, to developing devices in zoning whereby some control may be exercised over the timing of development, especially in our urban fringe areas.

He summed up by saying, "All in all, we are in a period of tremendous evolution in zoning, with much to be done to achieve the full potentialities of this important tool for the guidance of community development." ◄◄

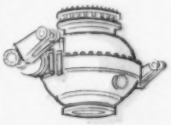
FLEXICROME
90% of the Cities in the United States use this ROD for cleaning sewers . . .
THERE MUST BE A REASON!
• BEST BY LABORATORY AND FIELD TEST
• SPECIAL STEEL FOR SEWER RODDING
• ACID RESISTANCE TREATED
• GROOVED COUPLINGS
FLEXICROME RODS are the end result of many years of field and laboratory tests. When you specify "Flexicrome" you get these important, exclusive features:
* Special alloy steel for extra toughness and durability.
* Heat fused rod coating for better sewer acid resistance.
* Solid center, grooved couplings for extra rod end support, and faster assembly.
Patent No. 2,471,060
FLEXIBLE INC.
3786 Durango Ave. • Los Angeles 34, Calif.
LIMA, OHIO
DALLAS, TEXAS

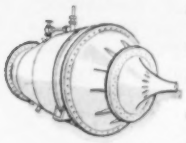
In the Mines of California's Mother Lode...

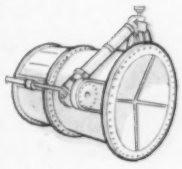
. . . B-L-H's Pelton Division got its first practical experience in water control. That was over 85 years ago. Since then Pelton has gone on to establish an international reputation for excellence in hydraulic design and construction. Its leadership is especially evident in waterworks equipment, where its diverse line assures an answer to virtually any problem.



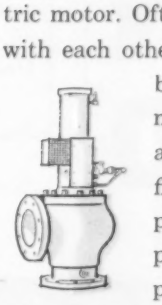
In butterfly valves, for instance, Pelton makes both the rubber and metal-seated kinds, and in sizes from 6 in. to 17 ft. All Pelton butterfly valves are equipped with heavy bronze-bushed bearings for the main shaft. These bearings can be readily removed from the valve body without dismantling the valves. Another valve—this one Pelton-developed—often chosen for waterworks shutoff is the spherical type, which, because of its simplicity greatly reduces head loss and maintenance expense. Like the spherical valve, the Larner-Johnson valve owes much to Pelton engineering. Easily adjusted, Larner-Johnson valves can be built to withstand pressures up to 1300 psi and are particularly applicable to throttling service or flow control such as discharging water from high-pressure mains to distributing lines. Pelton also makes three hollow-type valves—cone, stream and jet.

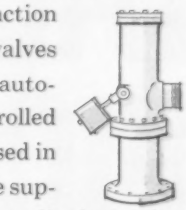


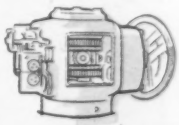


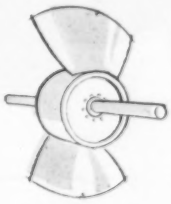


All can be used for free discharge or bypass and all can be operated manually, hydraulically or by electric motor. Often used in conjunction with each other are two more valves built by Pelton—automatic dashpot-controlled air valves, widely used in flow lines, and surge suppressors. The latter afford excellent protection for pump discharge lines, preventing excess pressure when the pumps are stopped. All the valve types mentioned here can be run with the Pelton Motor Operator, which uses a planetary gear system (thus eliminating the clutch) and which provides torque protection in both directions at no extra cost. We might also mention one other kind of Pelton water control equipment—axial flow pumps. These may be equipped with either fixed blade or variable pitch impellers. Where low or medium head, high operating efficiency and large discharge capacity are important factors, Pelton pumps can provide the answer at relatively low cost.









For further information on any Pelton valves or pumps, write Pelton Division (B-L-H), 2929 Nineteenth Street, San Francisco 10, Calif,. or B-L-H Corporation, Philadelphia 42, Pa.

BALDWIN · LIMA · HAMILTON

Pelton Division · San Francisco, Calif.

Hydraulic turbines • Valves • Governors • Centrifugal pumps

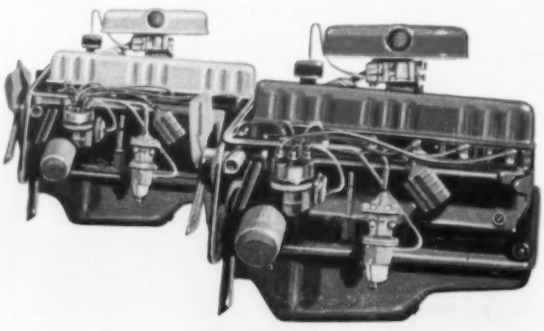
ANNOUNCING THE 1961 FORD FALCON PICKUP

LOW IN PRICE - AMERICA'S LOWEST-PRICED COMPACT PICKUP!

What a Falcon saves you on price* could keep your gas tank filled for thousands of miles! And there's more savings to come! Main underbody members are Zinclad-protected against rust and corrosion. Front fenders bolt on for ease of replacement—cost just $29.95 each. Insurance is as much as 15% less. Aluminized muffler lasts up to three times as long as ordinary types. You save on tires, on brakes, on oil . . . you name it and your Falcon saves it!

*Based on latest available manufacturers' suggested retail delivered prices

ECONOMY NEVER HAD SUCH STYLE



LOW GAS COSTS–OVER 30 MILES PER GALLON IN CERTIFIED TESTS!

In certified tests by the country's foremost independent automotive experts, the Falcon Pickup with 144-cu. in. Six scored as high as 38.3 miles per gallon! Average of all tests combined—hills and traffic, as well as moderate speeds on the level—was 30.5 mpg! Low oil costs, too—change it only every 4000 miles!

- *Roomy comfort for 3 husky passengers!*
- *Rides, handles like a passenger car!*
- *High Falcon fashion inside as well as out!*
- *Optional Fordomatic Drive available!*

1961 Falcon Ranchero, shown here in Montecarlo Red, is available in 8 handsome colors with Color-Keyed Luxury interiors.

NEW HIGH-PERFORMANCE OPTIONAL SIX!

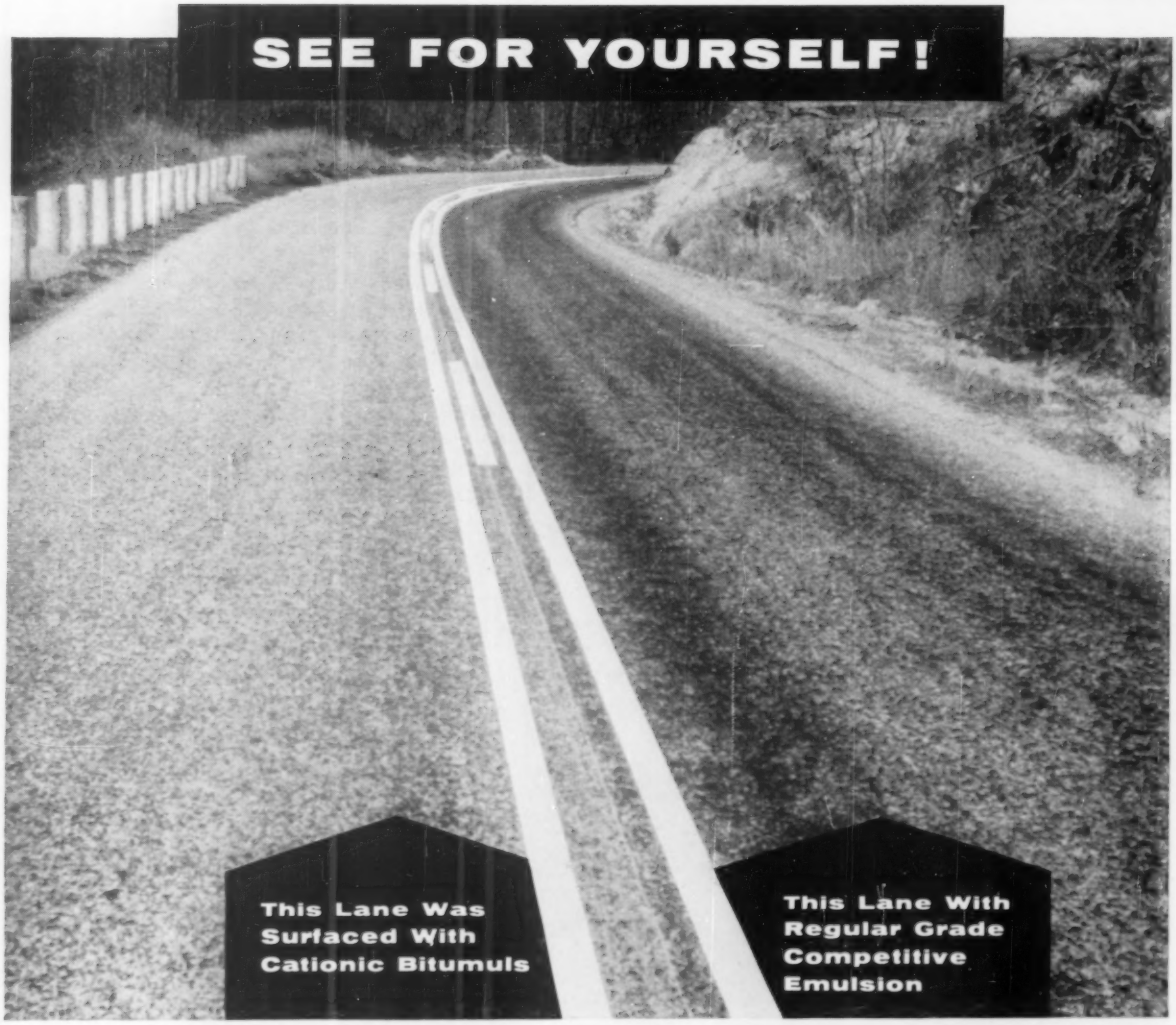
For '61 Ford's new Falcon Ranchero offers a choice of two modern gas-saving engines—144 Economy Six and, as an option, a new high-performance 170 Six. Both available with standard or Fordomatic transmissions. And thanks to the simplicity of their proven design, servicing is fast, low in cost!

LOW LOADING HEIGHT

Cargo floor to the ground measures a scant 25.2 inches . . . that means easy loading. And what a load! The Falcon Ranchero has a full 800-lb. load capacity! In its big six-foot box—over 7½ feet with tailgate flat—there's room to spare for just about any pickup job! You can open or close the tailgate with one hand . . . it locks tight and rattle-free automatically!

See your Ford Dealer's Certified Economy Book . . . it proves

FORD TRUCKS COST LESS



You Get BETTER Surface Treatments With CATIONIC BITUMULS

This photograph gives visible proof of the superior performance of Cationic Bitumuls. The picture was taken on a 25-mile test section of highway in North Carolina.

Based on the success of this job, Cationic Bitumuls is being used for extensive surface treatment work throughout the State during the current construction season.

In every test made to date—whether in laboratory or field—Cationic Bitumuls has shown two outstanding qualities:

1. Unusual ability to hold aggregate, even "difficult" types.
2. Rapid initial set that minimizes damage from early rainfall.

If you haven't tried this new material, call our nearest office today and arrange to test Cationic Bitumuls on your next pavement construction or maintenance job.

American Bitumuls & Asphalt Company

320 MARKET STREET • SAN FRANCISCO 20, CALIFORNIA

Atlanta 8, Ga. Portland 8, Ore. Perth Amboy, N. J. Mobile, Ala. Oakland 1, Calif. Baltimore 3, Md.
St. Louis 17, Mo. Inglewood, Calif. Cincinnati 38, Ohio Tucson, Ariz. San Juan 23, Puerto Rico

BITUMULS® Emulsified Asphalts • CHEVRON® Paving Asphalts • LAYKOLD® Asphalt Specialties • PETROLASTIC® Industrial Asphalts

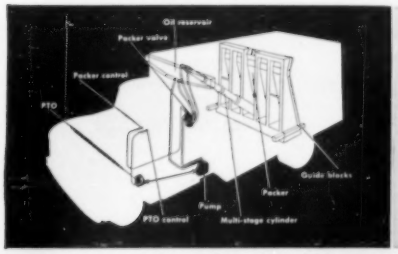
Hydro E-Z Packs cut complaints from 100 to less than 4 a day!

MR. PAT CAPELLO
Capello Bros., Inc.

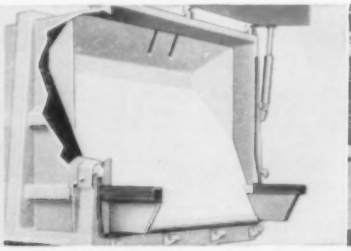
"Clean, efficient, odorless E-Z Pack service protects 3-year contract - saves up to 15%"

In Newton and West Newton, Mass., Capello Bros., Inc. serve some 40,000 residents with twice-weekly residential and daily commercial refuse disposal under a 3-year contract with the cities. Mr. Pat Capello, co-owner, says complaint calls have been cut from 100 or more to less than 4 a day since 1958 when his firm won the contract with 12 Hydro E-Z Packs. "Our clean, efficient, odorless E-Z Pack service protects our nearly ½ million dollar contract and saves up to 15% on operating costs," he said. The savings estimate is based on reduced travel time and maintenance economy. "We haven't had one minute of 'downtime' in 17 months," Mr. Capello said.

Perhaps E-Z Packs are the answer to your refuse disposal problem. See your Hydro E-Z Pack Distributor or write us for a free copy of *The Big Squeeze.*



Simplest of all disposal bodies with the fewest working parts. No complicated chains, conveyors or whirling knives.



Bulldozer plow travels length of floor for compaction, beyond body for clean unloading of bale. No hoisting needed.

Lower cost with less depreciation since elimination of heavy and complicated mechanism decreases chassis requirements.

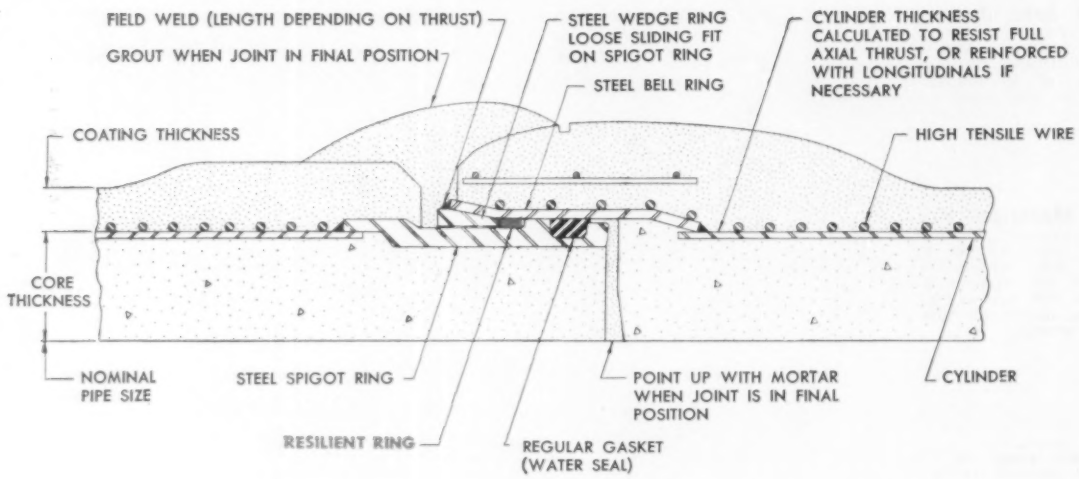
Hydro E-Z PACK

HYDRO E-Z PACK®

HYDRO E-Z PACK DIVISION OF HERCULES GALION PRODUCTS, INC., GALION, OHIO – U.S.A.

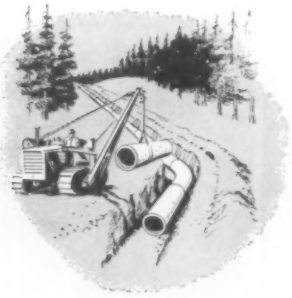
new

LOCK JOINT'S FLEXIBLE TIED JOINT *


FIELD WELD (LENGTH DEPENDING ON THRUST)
GROUT WHEN JOINT IN FINAL POSITION
STEEL WEDGE RING LOOSE SLIDING FIT ON SPIGOT RING
STEEL BELL RING
CYLINDER THICKNESS CALCULATED TO RESIST FULL AXIAL THRUST, OR REINFORCED WITH LONGITUDINALS IF NECESSARY
COATING THICKNESS
HIGH TENSILE WIRE
CORE THICKNESS
NOMINAL PIPE SIZE
STEEL SPIGOT RING
POINT UP WITH MORTAR WHEN JOINT IS IN FINAL POSITION
CYLINDER
RESILIENT RING
REGULAR GASKET (WATER SEAL)

RUBBER & STEEL FLEXIBLE TIED JOINT

SECURE...FLEXIBLE...WATERTIGHT



Lock Joint Pipe Company, pioneer in the development of efficient, flexible, watertight joints for concrete pressure pipe, once again is first with the most practical solution for restraining thrust at joints where conventional blocking is impossible or impractical.

A greater measure of flexibility is imparted to this field-welded joint by the resilient ring, located between the weld and the watertight rubber gasket seal. This ring also improves the tensile characteristics of the joint by distributing the load more evenly around the periphery of the joint ring.

Detailed description of this joint may be obtained from Lock Joint Pipe Company on request.

**Patent applied for.*

LOCK JOINT
MADE ITS WAY
BY THE WAY IT'S MADE
CONCRETE PIPE

LOCK JOINT PIPE CO.

East Orange, New Jersey

Sales Offices: Chicago, Ill. • Columbia, S. C. • Denver, Col. • Detroit, Mich. • Hartford, Conn. • Kansas City, Kan. • Perryman, Md. • St. Paul, Minn. • Winter Park, Fla.

Pressure • Water • Sewer • **REINFORCED CONCRETE PIPE** • Culvert • Subaqueous

Have You Problems?

These Free Booklets Will Help You

Check over these listings which will provide you with important up-to-date information on equipment and services that will assist you in solving municipal problems.

Write to address given or circle corresponding number on free post card on page 53

1961 John Deere Line

371 Ten-Ten is the designation JOHN DEERE, 3300 RIVER DRIVE, MOLINE, ILL., gives its new, 1961 series of earthmoving and material handling equipment, which includes six tractors (40-85 hp) and attachments, tractor engines, two crawler loaders, four wheel loaders with wide range of power-matched bucket sizes, and five all-job crawler bulldozers. Write for literature.

For Municipal Power Needs

372 Current literature from WAUKESHA MOTOR CO., WAUKESHA, WIS., discusses a series of in-line 6, V-8 and V-12 cylinder gas engines—up to 706 hp, which are advanced in design, dependable and proven in municipal service.

Helps You Get More for Your Air Conditioning Dollar

373 Engineering studies indicate that typical heat reductions achieved through use of Sun-X Glass Tinting will result in savings of 17% in initial air-conditioning costs in new construction and as much as 30% in annual air conditioning operating costs. The booklet, "Solve Sun Problems with Sun-X," tells all; write AMERICAN GLASS TINTING CORP., P. O. BOX 5565, DEPT. C, HOUSTON 5, TEXAS.

Street Name, Traffic Control Signs

374 *Sign Manual* B-55 is packed full of valuable information on street marker and traffic control signs and all types of sign materials and styles and finishes. It's available from LYLE SIGNS, INC., 2722 UNIVERSITY AVE., S. E., MINNEAPOLIS 14, MINN., which also offers service that will help you solve your signing problems.

Seals Large-Diameter Vitrified Clay Pipe

375 Four-page illustrated *Folder* E-460-60 details the new, factory-made Wedge-Lock Type "O" Joint for vitrified clay pipe. It's just been published by EVANS PIPE CO., ULRICHSVILLE, OHIO, and includes installation procedures, dimensions and specifications.

Couple Snow Plows in Seconds

376 You can now hitch a truck to a snow plow in just seconds (and disengage it just as quickly) simply by driving up to the plow and activating cab-controlled hydraulic controls—you can, if truck and plow are equipped with the Husting Hitch. For full facts on this time and money-saving coupling, write KASTEN MFG. CORP., ALLENTON, WIS.

Equipment for Tree Care

377 A compound-lever combination tree trimmer and saw that considerably simplifies and speeds tree care operations is but one tool in a catalog complete with equipment required by tree surgeons. Write BARTLETT MFG. CO., 3035 E. GRAND BOULEVARD, DETROIT 2, MICH.

For an Up-To-Date Sewage Treatment Plant

378 Whether yours is the smallest village or the largest city, it will want to get full value for its sanitation investment. One way to do this is to write for bulletins or explain your problem to technicians at PACIFIC FLUSH TANK CO., 4241 RAVENSWOOD AVE., CHICAGO 13, ILL. Prompt, thorough attention will be given to all requests.

All-Hydraulic Street Sweeper

379 In its 4-page bulletin on the 4-cubic yard capacity Saginaw street sweeper, STREET EQUIPMENT SALES CORP., 327½ E. SIXTH ST., LOS ANGELES 14, CALIF., both describes and illustrates construction and operating features of the gutter and rear broom, elevator and dumping mechanism, water system, hydraulic system and sweeping path. Specifications included.

Utility Service Truck Bodies

380 If you want a utility service truck body to be solidly constructed, to have well-planned compartments with sufficient room to accommodate tools of every size, and with such "extra" features as recessed, fool-proof latches, then you'll want to peruse the *Service Master Bulletin*. Write McCABE-POWERS BODY CO., 5900 N. BROADWAY, ST. LOUIS 15, MO.

Street Lighting Departments

381 Just released by PRECISION MULTIPLE CONTROLS, INC., 233 CHESTNUT, RIDGEWOOD, N. J., this 24-page data file describes tubeless controls with locking-type receptacles prescribed by NEMA standards, along with mounting accessories for adapting photoelectric "automation" to any outdoor lighting fixture. Illustrated with photos and technical drawings, it also includes data for training personnel in photoelectric control theory.

Eliminates Leaking Joints

382 CENTRILINE CORP., 140 CEDAR ST., NEW YORK 6, N. Y., which developed a process for repairing deteriorated pipe linings in place, announces the Centriseal Process, which effectively stops leakage in small as well as large sanitary and storm drains. No excavations are necessary and operations are monitored by TV. Literature is available.

Tailgate Spreader for Ice Control/Seal Coating

383 In its latest bulletin on the Hi-Way Model J traction-type spreader, HIGHWAY EQUIPMENT CO., 638B "D" AVE., N. W., CEDAR RAPIDS, IA., gives complete specifications and points out the finer features of this unit, which gears itself to the surface of the road, whether on ice control or seal-coating duty.

Signals Hazards Ahead

384 In a current pamphlet HAWKINS-HAWKINS CO., INC., 1255 EASTSHORE HIGHWAY, BERKELEY 10, CALIF., reports on a new hazard-warning device, which telescopes "danger ahead" high over obstructions. It serves vehicular traffic as an advance precautionary signal and protects men and equipment on the job. It's name? Warning-Scope!

Control Cable for Substations

385 Because control cable is a main artery of every power substation, its importance and characteristics cannot be minimized. That's why ROME CABLE DIVISION OF ALCOA, DEPT. 23-90, ROME, N. Y., has compiled *Bulletin* RCP-100, "Guide to Representative Wire, Cable and Conduit."

Have to Reach High?

386 If you have an overhead maintenance job and want it done with speed, safety and efficiency, dispatch a Hi-Ranger aerial tower to the site. See how it and one man quickly get the work done. For descriptive literature, write MOBILE AERIAL TOWERS, INC., 1730 N. HARRISON ST., FT. WAYNE, IND.

Safeguarding Your Ground Water Supply

387 In this bulletin, HALLIBURTON COMPANY, DUNCAN, OKLA., explains how such services and techniques as cementing, fracturing and acidizing, hydro-sonic redevelopment, formation testing, etc., can measurably safeguard your ground water supply and keep its cost low.

Markers and Tablets

388 *Catalog* A-118 will give you full details on a quality line of bronze plaques, honor rolls, tablets, memorials and testimonials for municipal use; *Catalog* B-118, the facts on medals and trophies. Both available free upon request to INTERNATIONAL BRONZE TABLET CO., INC., 150 W. 22nd ST., NEW YORK 11, N. Y.

Keeps Pipe on the Move

389 You'll find that you can install or renew pipe under pavement quickly with the Trojan on the job, for it combines pulling and pushing operations, eliminates resetting of grip, keeps pipe on the move. Several models are available. For descriptive literature, write THE TROJAN MFG. CO., 113 RACE DRIVE, TROY, OHIO.

Waste Treatment Equipment

390 *Catalog* No. S-4, which illustrates and describes "Varec" equipment, including digester gas control, cover position indicators and safety devices, is new in format and includes much new technical data in handy chart and table form. For a copy, write VAPOR RECOVERY SYSTEMS CO., 2820 N. ALAMEDA ST., COMPTON, CALIF.

(See page 44 for more Bulletins)

PIPE THAT DOESN'T GET COLD FEET IN WET TRENCHES

This cast iron pipe was installed to carry water to an important industrial site in Indiana.

At the time of installation, weather conditions were severe; the trenches were wet and muddy.

Still, the cast iron pipe was easily and speedily assembled, enabling the contractor to complete the job well ahead of the deadline.

Cast iron pipe does not get cold feet over rugged soil conditions. Its rugged design, corrosion-resistant qualities, and bottle-tight joints will withstand the most severe conditions.

Modern, cement-lined cast iron pipe will deliver a continued full flow of water for at least a century . . . and rarely requires repairs or replacement.

CAST IRON PIPE RESEARCH ASSOCIATION,
Thos. F. Wolfe, Managing Director,
3440 Prudential Plaza, Chicago 1, Illinois

CAST IRON PIPE
THE MARK OF THE 100-YEAR PIPE

Use Northern Gravel for Rapid Sand Filter

City of Milwaukee Water Filtration Plant.

Filter Sand Specifications

are carefully laid out. The Effective Sizes and Uniformity coefficients used by Consulting Engineers and also recommended by the American Water Works Association are the result of long years of research and experience.

The Northern Gravel Company is equipped to give you prompt shipment whether it be one bag or many carloads, exact to specifications. Filter sand can be furnished with any effective size between 0.35 MM and 1.20 MM.

Chemical Quality

of the filter sand is also important. It must be hard, not smooth, and free of soluble particles. This requires perfect washing and grading facilities. We have every modern device for washing, drying, screening and testing.

Filter Gravel

supporting the Filter Sand Bed, must be in turn, properly graded to sizes calculated to support the Filter Sand, and be relatively hard, round and resistant to solution.

Northern Gravel has no equal in facilities and our reserves of both sand and gravel are inexhaustible. Northern Gravel Company has been in business over 45 years. We guarantee uniformity of products and our records enable us to duplicate your requirements on short notice. Our location is central and we have commodity rates in every direction.

Northern Gravel Company

Box 307 **Muscatine, Iowa** Phone: AMherst 3-2711

YOU NEED *These catalogs*

Write to address given or circle corresponding number on free post card on page 53.

Everything in Waste Receptacles

391 In this 16-page full-line catalog you'll find waste receptacles for indoor and outdoor use, wall-mounted and standing units, self-closing refuse cans, wall urns, all-service containers, galvanized pails and a universal dolly to make moving these cans about easier. Write THE F. H. LAWSON CO., CINCINNATI 4, OHIO.

To Catch Speeders

392 For over 20 years courts have recognized evidence obtained by use of the Dowden Speed Recorder. This 4-page bulletin lists municipal and state traffic enforcement agencies of all sizes that use it and explains how this portable, one-man operated unit indicates exact car speed. Write NATIONAL RECORDERS, 7637 LYNDALE AVE., S., MINNEAPOLIS, MINN.

City Engineers

393 Here's an instrument that measures short, unknown distances with extreme accuracy. It's ideally suited for such surveying tasks as photo-grammetry and traversing on short lines, highway and bridge layout, boundary lines and sub-division layout. But let THE GEODIMETER CO., DIV. OF AGA CORP. OF AMERICA, SOUTH PLAINFIELD, N. J. tell you all about Model 4.

Electric Generators

394 You'll find these generators designed and engineered to meet your most exacting needs, whether you need low-speed engine-type units to provide power for pumping, comminution, flocculation or digestion at municipal sewage treatment plant or high-speed units for emergency or stand-by use. IDEAL ELECTRIC & MFG. CO., 344 E. FIRST ST., MANSFIELD, OHIO, can give you all facts.

Something New in Street Lighting

395 REVERE ELECTRIC MFG. CO., 7420 LEHIGH AVE., reports on its new family of unitized mercury luminaires with built-in components, giving complete catalog information and technical data.

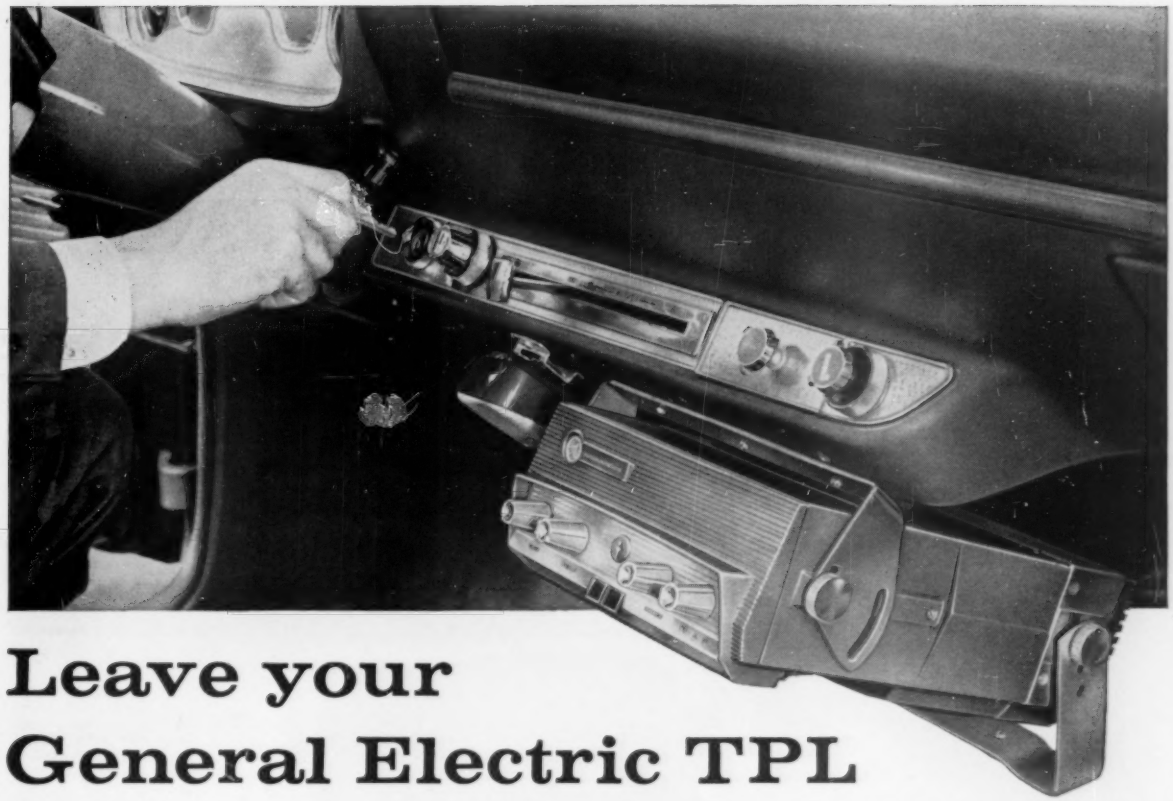
Safeguards City Equipment

396 *Form* No. 7480 gives full facts on Universal two-way flashers, which offer 360° visibility, have 7-inch lenses, and most importantly safeguard your municipal service vehicles (street sweepers, trucks, graders, etc.) against accidents. For a copy, write GEORGE MULHOLLAND CO., 1950 CHARLES AVE., ST. PAUL 4, MINN.

Eliminate Ice Hazard

397 When winter brings ice and snow be ready to combat it with Safe-T-Salt, which gives immediate penetration. For information about this and other use, write MORTON SALT CO., INDUSTRIAL DIV., DEPT., AC 9, 110 N. WACKER DR., CHICAGO 6, ILL.

(See page 49 for more Bulletins)



Leave your General Electric TPL 2-way radio on while your engine is off!

LOWEST BATTERY DRAIN AVAILABLE

Other makes of mobile radio drain your battery severely, even on standby. Unless you keep the engine running, this will inevitably shorten the life of your battery. And if you *do* run the engine while your vehicle is standing still, you're letting yourself in for a whole series of other problems—increased gas consumption, increased engine wear, special generators, etc.

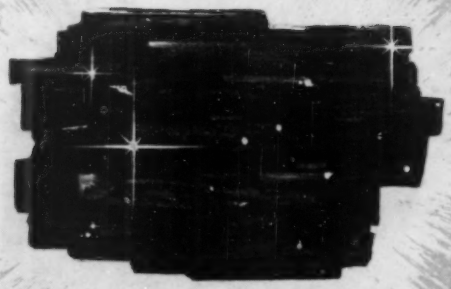
Not so with TPL! Standby battery drain on General Electric's new Transistorized Progress Line is so low you need never turn off the TPL unit in your vehicle. By actual measurement, drain is less than 40 milliamperes, or only 1/25 of the current that runs your dome light. And even when the receiver is talking, drain is only 540 milliamperes.

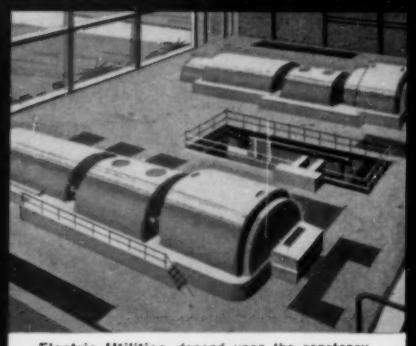
With only four tubes in the TPL transmitter, you require no special generator, use less gas and need fewer engine jobs. The cost of operating your two-way radio system goes way, way down.

Get the full story on TPL—the smallest, most reliable two-way radio you can buy today. Write General Electric Company, Communication Products Dept., Section 1100, Mountain View Road, Lynchburg, Virginia.

GENERAL ELECTRIC

REDISCOV





Electric Utilities depend upon the constancy of coal because electric power cannot be carried in inventory. It must be made when needed and used the instant it is made. Over 70% of the fuel consumed by utilities is coal.

ER COAL !

COAL IS ENERGY... producing low-cost kilowatt-hours for modern electrical living

As more and more Americans turn yesterday's household luxuries into today's necessities, electricity continues to be the greatest single force lifting our standard of living. In the last ten years our population has increased 20%. But the residential demand for electrical power during that time has risen 251%! For commercial and industrial use there has been a 150% increase. To satisfy this growing and boundless demand for dynamic energy, the electric utility industry has just about doubled its capacity every decade, all the while improving its fine record of giving more and more power for the consumer dollar.

Power companies are the biggest single user of coal. Nearly 70% of fuel-produced electric energy is generated by coal. Our country's five most efficient power plants, based on the 1958 report of the Federal Power Commission, operate 100% on coal.

In this booming energy market—and in other industries including steel making, process steam and heating as well — coal is the favored fuel. It offers the highest efficiency at lowest cost. It can match the stride of future consumption... is dependably, economically transported as needed by Chesapeake and Ohio's giant coal car fleet — and its abundant reserves can be counted upon for centuries.

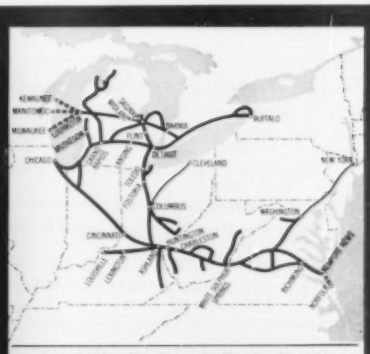
Chesapeake and Ohio Railway

TERMINAL TOWER, CLEVELAND 1, OHIO

Outstandability in Transportation

Coal is clean as well as economical for modern institutional heating. Advancements in handling and combustion equipment, electrostatic precipitators and other devices to prevent air pollution make coal the ideal fuel.

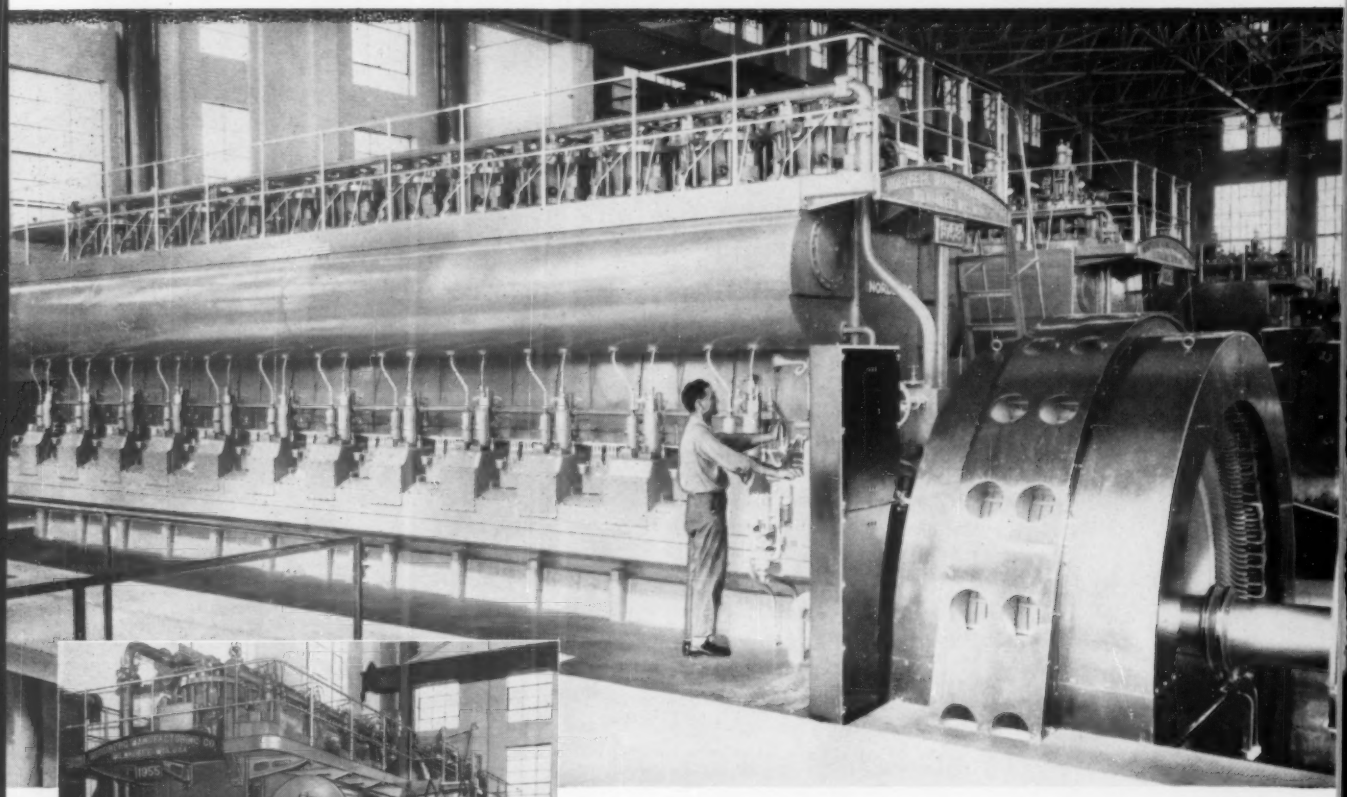
C&O Fuel Service Engineers offer free consultation in C&O's market areas on any problem of combustion, application, equipment or plant arrangement. Write to: R. C. Riedinger, General Coal Traffic Manager, at the address above.



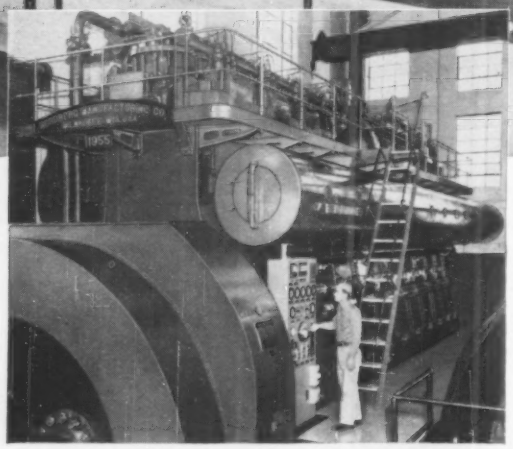
The 5100-mile Chessie Route directly serves over 300 mines in America's richest bituminous coal reservoir with the finest fleet of 68,000 coal cars. Specify C&O routing for dependable, efficient delivery.

CHESSIE SERVES THE COAL BIN OF THE WORLD

Why taxpayers vote YES ☒ for money-saving diesel power



P659



In Ponca City, Oklahoma . . .

9 NORDBERG ENGINES help make a net profit of almost $1,000,000 a year

The world's largest dual fuel engine is helping the Ponca City, Oklahoma municipal power plant attain new records in production volume, operating economy, and net profits. This 8,500 horsepower Nordberg Duafuel® unit (shown at left), together with eight other Nordberg engines in this notable plant, produced a total of over 55 million kilowatt-hours in the fiscal year ended June 30, 1958, at a total production cost of just 5.67 mills per kwh. *Net profit for the year was over $920,000.00, and net plant profit for 10 years exceeded $7,000,000.00.*

Ponca City and its Light Department owe much to experienced Superintendent of Utilities Pat Schlesinger, who not only directs operations but engineered the big installation. This highly successful municipal plant is a joint achievement, with credit due to Mr. Schlesinger's able staff and to the many present and past city officials who cooperated in the development of this efficient and profitable municipal utility . . . an outstanding example for other municipalities to follow.

POWER PLANT PROGRESS

1924—First 1250 hp Nordberg Diesel installed at Ponca City.

1926—Second 1250 hp Nordberg Diesel installed at Ponca City.

1928—Two more 1250 hp Nordberg Diesels installed.

1937—2250 hp Nordberg Diesel started (converted to dual fuel in 1947).

1947—2400 hp Nordberg Duafuel engine installed.

1949—3600 hp Nordberg Duafuel unit added, one 1250 hp unit retired.

1952—4275 hp Nordberg Duafuel engine went into service.

1953—5135 hp Nordberg Duafuel installed.

1955—Ponca City's latest addition—10-cylinder, 29" bore x 40" stroke Nordberg Duafuel engine, rated 8500 horsepower.

©1959, N. M. CO.

NORDBERG MANUFACTURING COMPANY · Milwaukee 1, Wisconsin

ATLANTA • CLEVELAND • DALLAS • DULUTH • HOUSTON • KANSAS CITY • MINNEAPOLIS • NEW ORLEANS • NEW YORK • ST. LOUIS
SAN FRANCISCO • TAMPA • WASHINGTON • TORONTO • VANCOUVER • JOHANNESBURG • LONDON • MEXICO, D. F.

FREE catalogs

Write to address given or circle corresponding number on free post card on page 53.

You Can Save the Pavement

398 . . . eliminate trenching and reduce pipe installation costs up to 90% by using the Hydrauger earth boring tool, which bores up to 250 feet. The *Hydrauger Booklet* shows costs and speeds of boring as well as specifications of various models. Write HYDRAUGER CORP., LTD., 681 MARKET ST., SAN FRANCISCO 5, CALIF.

What's New in Fluorescents

399 It's easy enough to find out what's new in Power Groove fluorescents and at the same time how you can shave your initial lighting investment by as much as 40c a square foot—just write GENERAL ELECTRIC CO., LARGE LAMP DEPT. C-031, NELA PARK, CLEVELAND 12, OHIO.

Small Diesels

400 These compact units can be depended upon to provide the power needed for portable and emergency equipment and for general purpose applications. Both air-cooled and water-cooled engines, their accessories and their application are fully described in literature from CONTINENTAL MACHINERY CORP; P. O. BOX 5309, LONK BEACH 5, CALIF.

Refuse Disposal Problem?

401 And not read "The Big Squeeze"? It might provide you with the solution to your problem, for it describes an efficient, clean, odorfree refuse collection body that packs tight, unloads easily, operates economically. Write HYDRO E-Z PACK DIVISION OF HERCULES GALION PRODUCTS INC., GALION, OHIO.

Works Its Way Around the City

402 Here's a versatile machine that can be equipped with a variety of useful attachments and is available in a model and size to fit every street, park, sanitary and highway department. The bulletin, "More Mileage for Your Tax Dollar," tells the full story; write THE FRANK G. HOUGH CO., 710 SUNNYSIDE AVE., LIBERTYVILLE, ILL.

Street and Park Baskets

403 These waste receptacles invite use, and when strategically placed in public areas—at street corners, bus stops, in parks, etc.—they let the public help you keep your community clean. Let NORWICH WIRE WORKS, INC., 159 STATE ST., NORWICH, N. Y., provide you with details and specifications.

Top-Performing Tractor Shovels

404 Are you up to date on the Trojan tractor shovel line? Current literature gives specifications, description and construction features on eight models with lifting capacities ranging from 6,000 to 24,000 pounds. Write THE YALE & TOWNE MFG. CO., TROJAN DIVISION, BATAVIA, N. Y.

Chain-Driven Power Mowers

405 New data sheets from LOCKE MOWER DIVISION, THE LOCKE STEEL CHAIN CO., 1315 CONNECTICUT AVE., BRIDGEPORT 1, CONN., gives facts and figures on 3 models and 4 sizes of chain-driven power mowers that cut open grass areas clean and save up to 50% hand-trimming.

(See page 52 for more Bulletins)

NEW FOX spreader feature

A Fox Exclusive—continuous power from transmission to spinner drive. Permits even feeding and spreading of materials at variable truck speeds.

How to make a ton of salt go 6 times as far

Ever totaled up your winter salt and aggregate bills and wondered if there was some way to cut them—and still keep icy pavements under control? But the old bugaboo—uneven spreading in heavy traffic had you licked.

SEE YOUR FOX DISTRIBUTOR

Now you *can* do something about it—with a Fox Mountable Spreader. For Fox has developed a new transmission that provides continuous power takeoff—*from transmission to spinner drive*—so that, regardless of the speed your truck is traveling, the rate of feed and the width of spread will always be the same.

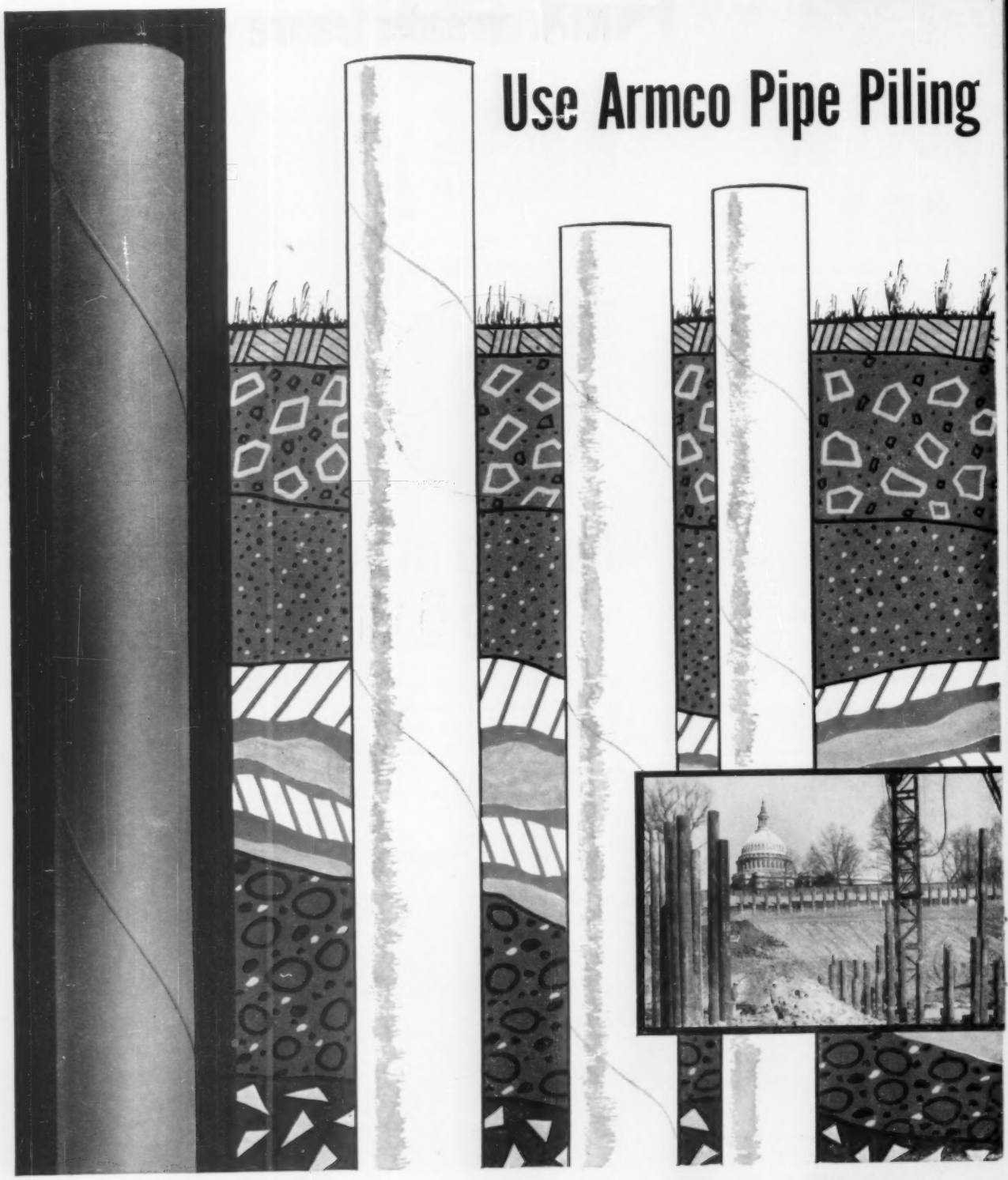
And, too, with this new Fox transmission you can get a spread of from 8 up to 60 feet with wet sand and cinders—and up to 90 feet with salt—if you need it.

So, instead of 6 yards of salt covering approximately 10 miles, it can be made to effectively cover 60 miles. That's a real saving, isn't it?

Remember, also, this is a one-man operation—controlled from inside the cab. Ask your nearest Fox dealer for details or, better yet, ask him to demonstrate.

FOX RIVER TRACTOR CO. ROAD MACHINERY DIVISION

Dept. R15, 1020 N. Rankin St. • Appleton, Wisconsin • Phone: REgent 4-1451


Use Armco Pipe Piling

...You can check it where it counts most

IN THE GROUND

When you specify and use Armco Steel Pipe Piling, you'll find advantages that no other type of foundation product can deliver. *After it's in the ground,* you can make a quick, sure check for alignment and watertightness. A light or reflector lets you see all the way to the bottom. You *know* where each pile goes—no doubt about it.

You can get Armco Pipe Piling in 132 different diameter-wall thickness combinations. Lengths are practically unlimited. In addition, you can meet foundation pipe needs from lightweight Armco HEL-COR® Pile Shells. These shells are available in diameters from 10⅝″ to 22″. Thus, it is an easy matter to specify an Armco Foundation Pipe that meets your *exact* requirements. Get details now. Send coupon for 16-page catalog on Armco Foundation Products. Armco Drainage & Metal Products, Inc., 5670 Curtis Street, Middletown, Ohio.

New steels are born at Armco

ARMCO DRAINAGE & METAL PRODUCTS, INC.
Department A
5670 Curtis Street, Middletown, Ohio
Send your catalog on Armco Foundation Products

Name_____ Title_____

Company_____

Street_____

City_____ Zone_____ State_____

ARMCO DRAINAGE & METAL PRODUCTS

Subsidiary of ARMCO STEEL CORPORATION

OTHER SUBSIDIARIES AND DIVISIONS: Armco Division • Sheffield Division • The National Supply Company • The Armco International Corporation • Union Wire Rope Corporation

Here is Your Opportunity to Improve Conditions in Your City

These free catalogs will supply many new ideas for municipal money saving.

Write to address given or circle corresponding number on free post card on page 53

Uses of Plastic Pipe

406 More than 14,000 miles of Kralastic piping has been installed in natural gas, electric, water, chemical, radiant heating and waste disposal lines. The reasons, in terms of characteristics, advantages and economy, are gone into in literature available from UNITED STATES RUBBER, NAUGATUCK CHEMICAL DIV., DEPT. 1044K, ELM ST., NAUGATUCK, CONN.

Efficient Incineration

407 Recent installations show that C-E Incinerator Stokers do an excellent job. Some of the design highlights are that it requires less labor, is easy to operate, assures a maximum combustion efficiency and provides the most economical disposal. For details, write COMBUSTION ENGINEERING, 200 MADISON AVE., NEW YORK 16, N. Y.

Save On Ice Control

408 Would you like to cut the cost of ice control? With a Fox Mountable Spreader you can overcome wasteful uneven spreading regardless of truck speed and spread a swath up to 90 feet wide. For details write FOX RIVER TRACTOR CO., DEPT. R15, 1020 N. RANKIN ST., APPLETON, WIS.

Quickly Clears Snow

409 By writing to FRINK SNO-PLOWS, INC., CLAYTON, 1000 ISLANDS, N. Y., you can obtain a fully illustrated catalog on reversible snowplows with trip blades that plow left or right or bulldoze straight ahead, end deadheading, and are maneuverable in parked-car areas and dependable for high-speed plowing.

1961 Pick-Up Trucks

410 Literature from FORD MOTOR CO., TRUCK DIV., P. O. BOX 658, DETROIT, MICH., announces the 1961 Ford Falcon pick-up, a compact truck that is low in cost, delivers 30 miles per gallon and has low loading height among its features. Several models available.

Throws Snow for a Loop

411 This rotary snow throw and loader is designed for all makes of front loaders and loads approximately 15 cubic yards of windrowed snow per minute. It's one product in a complete line of snow removal equipment. For literature on the Sno-Thro and other equipment, write WAUSAU IRON WORKS, WAUSAU, WIS.

Volatile Liquid Pumps

412 New 3-color 6-page *Bulletin* 101, entitled "Layne Volatile Liquid Pumps", has just been published by LAYNE & BOWLER, INC., BOX 6697, MEMPHIS, TENN. It includes cross-section drawings on the standard short coupled vertical turbine pump and the canned type vertical turbine pump with uses and applications illustrated.

Precise Surveying Instruments

413 *Brochure* DK 518-10 presents pertinent data on the DKMI 10-second theodolite with optical micrometer, which can be used with an electric lighting unit for night work, and tells about a tripod that centers instruments accurately in just seconds. Write KERN INSTRUMENTS INC., 120 GRAND ST., WHITE PLAINS, N. Y.

Accurately Measures Water Use

414 By writing to CALMET METER DIVISION, WORTHINGTON CORP., 2301 S. MAIN, FORT WORTH, TEXAS, for its latest bulletin, you can get acquainted with a water meter that's precise in measurement, simple in construction, and easy to maintain.

Refuse Transport Bodies

415 "Speed Up Your Refuse Handling" is the title of a new brochure offered by BAUGHMAN MFG. CO., JERSEYVILLE, ILL., on its self-unloading refuse transport bodies. The bodies vary in length from 15' to 40' and can be loaded directly from a truck or by clamshell. Request *Bulletin* A-446.

Diatomite Filtration

416 An explanatory bulletin from R. P. ADAMS, INC., 232 E. PARK DRIVE, BUFFALO 17, N. Y., reports on the standby and emergency use of diatomite filters by municipalities in the treatment of water.

No More Lost Keys

417 There's a Telkee System to fit every size and type of application, to solve every key problem efficiently, inexpensively. The *Telkee Booklet* explains this maximum key control system; for a copy, write P. O. MOORE, INC., GLEN RIDDLE 50, PA.

Dependable Municipal Castings

418 You'll find a wide range of municipal castings in just about every size, shape and style to meet your needs in *Bulletin* MII. So if you need valve service or roadway boxes, meter boxes, manhole rings or covers, write BUFFALO PIPE & FOUNDRY CORP., DEPT. J., BOX 55—STATION B, DE 6764, BUFFALO 7, N. Y.

Small-Flow Sewage Treatment

419 Completely revised 8-page *Bulletin* No. 7315 describes the Comple-Treator, which provides complete sewage treatment in a single tank, using up-to-date, mechanized sanitary engineering methods for the disposal of domestic waste of 150 persons (15,000 gpd) or less. Write DORR-OLIVER INC., STAMFORD, CONN.

Refill Fibres for Sweepers

420 A. STEIERT & SON, INC., HATFIELD, PA., reports that is has on hand a wide variety of domestic and imported refill fibres for power street sweepers, as well as tough, durable gutter wire in gauges and length to suit your needs.

Measure As You Walk

421 Several models of measuring wheels that record feet automatically, keep accumulated total in view, and show inches, fractions and tenths of a foot are the subject of literature now available from ROLATAPE, INC., 1741 14TH ST., SANTA MONICA 2, CALIF.

Parking Lot Planning

422 A 40-page manual, entitled "How to Lay Out a Parking Lot," is yours for the asking; just write WESTERN INDUSTRIES INC., 2730 W. 36TH PLACE, CHICAGO 22, ILL., which can also show you how to make off-street parking a revenue producer.

Water Meter Recorders

423 *Bulletin* 28 gives details on the Model 60M meter, which provides essential flow data for operation of sewage treatment plants; *Short Form Catalog* No. 23, Stevens hydrologic instruments, and the *Hydrographic Data Book* ($1 per copy), 124 pages of technical data on recorder installations, plus hydraulic and conversion tables. Available from LEUPOLD & STEVENS INSTRUMENTS, INC., 4445 N. E. GLISAN ST., PORTLAND 13, ORE.

Plastic Pipe for Water Service Lines

424 A descriptive folder on this subject points out that Cresline KL plastic pipe is approved for drinking water use, is resistant to corrosion, and costs 50-75% less installed than metal pipe. To learn of other advantageous features, write CRESCENT PLASTICS, INC., DEPT. C-O, 955 DIAMOND AVE., EVANSVILLE 7, IND.

Locates Pipe, Detects Leaks

425 THE GOLDAK CO., INC., 1544 W. GLENOAKS BLVD., GLENDALE 1, CALIF., reports that its new "Dualtronic" Model LC-5T is designed specifically for municipalities and water companies and that it is both an effective transistorized locator and sensitive leak detector. Write for literature giving full details.

When Setting Meters in Tight Locations

426 The angle meter stops and couplings in this bulletin will simplify the job of setting meters in confined locations. They are available in a complete range of sizes with either copper coupling or iron pipe threads. MUELLER CO., DECATUR, ILL. can give you all the facts.

They Adapt to All Traffic Situations

427 Hundreds of cities use Safe-T-Cone traffic guides as emergency barricades, to channel traffic, when painting traffic lines, or during utility repairs. Three sizes are available and all can be stacked for easy storage. For descriptive literature, write RADIATOR SPECIALTY CO., CHARLOTTE, N. C.

Low-Cost Sewage Treatment for the Small Communities

428 CHICAGO PUMP CO., 622 DIVER SEY PKWAY., CHICAGO 14, ILL., announces availability of "Rated-Aeration SS," a factory-built small cylindrical steel sewage treatment tank that can be installed above or below ground. It's said to be low in original, operation and maintenance cost, high in efficiency and available in three sizes—1000,3000, 5000 gpd. Request *Bulletin* 136.

Greater Clarifying In Smaller Tanks

429 Here's a way to stretch plant capacity. By installing a Rex Verti-Flo you can at least double the clarifying capacity of your tank and by using it in a new installation it will give you up to four times more capacity. For information, write CHAIN BELT CO., 4648 W. GREENFIELD AVE., MILWAUKEE 1, WIS.

(See page 56 for more Bulletins)

Postage Will be Paid by Addressee

No Postage Stamp Necessary If Mailed in the United States

BUSINESS REPLY CARD
FIRST CLASS PERMIT No. 281, SEC. 34.9 P. L. & R., NEW YORK, N. Y.

THE AMERICAN CITY MAGAZINE
470 PARK AVENUE SOUTH
NEW YORK 16, N. Y.

DON'T LET THIS HAPPEN TO YOU

Learn how to avert Water Supply crises and other municipal problems. Get the information you need in a hurry with this reply card.

To THE AMERICAN CITY's Catalog Supply Department
Please send me literature on items numbered as follows, starting on page 41:

371	383	395	407	419	431	443	455	467	479	491	503
372	384	396	408	420	432	444	456	468	480	492	504
373	385	397	409	421	433	445	457	469	481	493	505
374	386	398	410	422	434	446	458	470	482	494	506
375	387	399	411	423	435	447	459	471	483	495	507
376	388	400	412	424	436	448	460	472	484	496	508
377	389	401	413	425	437	449	461	473	485	497	
378	390	402	414	426	438	450	462	474	486	498	
379	391	403	415	427	439	451	463	475	487	499	
380	392	404	416	428	440	452	464	476	488	500	
381	393	405	417	429	441	453	465	477	489	501	
382	394	406	418	430	442	454	466	478	490	502	

I would also like to receive manufacturers' booklets on.....

.....

.....

.....

Name: (Please Print).....

Title:.....

Address:.....

..... 10-60

A Listing of Your Business Connection Is Important

To THE AMERICAN CITY's Catalog Supply Department

Please send me literature on items numbered as follows, starting on page 41:

371	383	395	407	419	431	443	455	467	479	491	503
372	384	396	408	420	432	444	456	468	480	492	504
373	385	397	409	421	433	445	457	469	481	493	505
374	386	398	410	422	434	446	458	470	482	494	506
375	387	399	411	423	435	447	459	471	483	495	507
376	388	400	412	424	436	448	460	472	484	496	508
377	389	401	413	425	437	449	461	473	485	497	
378	390	402	414	426	438	450	462	474	486	498	
379	391	403	415	427	439	451	463	475	487	499	
380	392	404	416	428	440	452	464	476	488	500	
381	393	405	417	429	441	453	465	477	489	501	
382	394	406	418	430	442	454	466	478	490	502	

I would also like to receive manufacturers' booklets on.....

.....

.....

.....

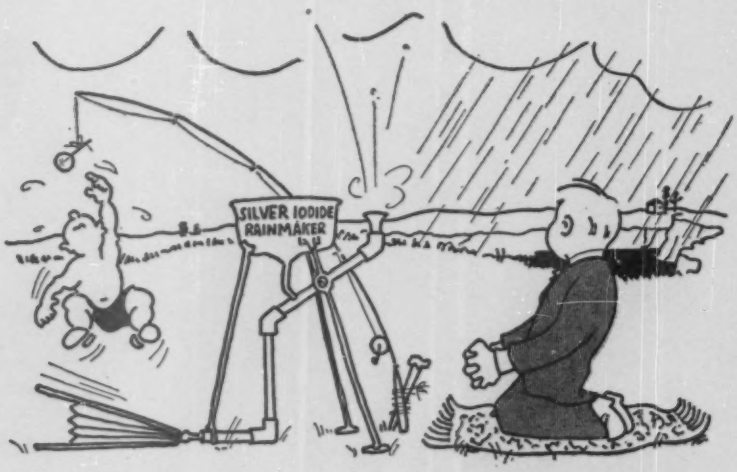
Name: (Please Print).....

Title:.....

Address:.....

..... 10-60

A Listing of Your Business Connection Is Important



WHEN YOU WANT RESULTS QUICKER THAN THIS . . .

Postage Will be Paid by Addressee

No Postage Stamp Necessary If Mailed in the United States

BUSINESS REPLY CARD

FIRST CLASS PERMIT No. 281, SEC. 34.9 P. L. & R., NEW YORK, N. Y.

THE AMERICAN CITY MAGAZINE

470 PARK AVENUE SOUTH

NEW YORK 16, N. Y.

save time, effort and be sure of performance by using this reply card.

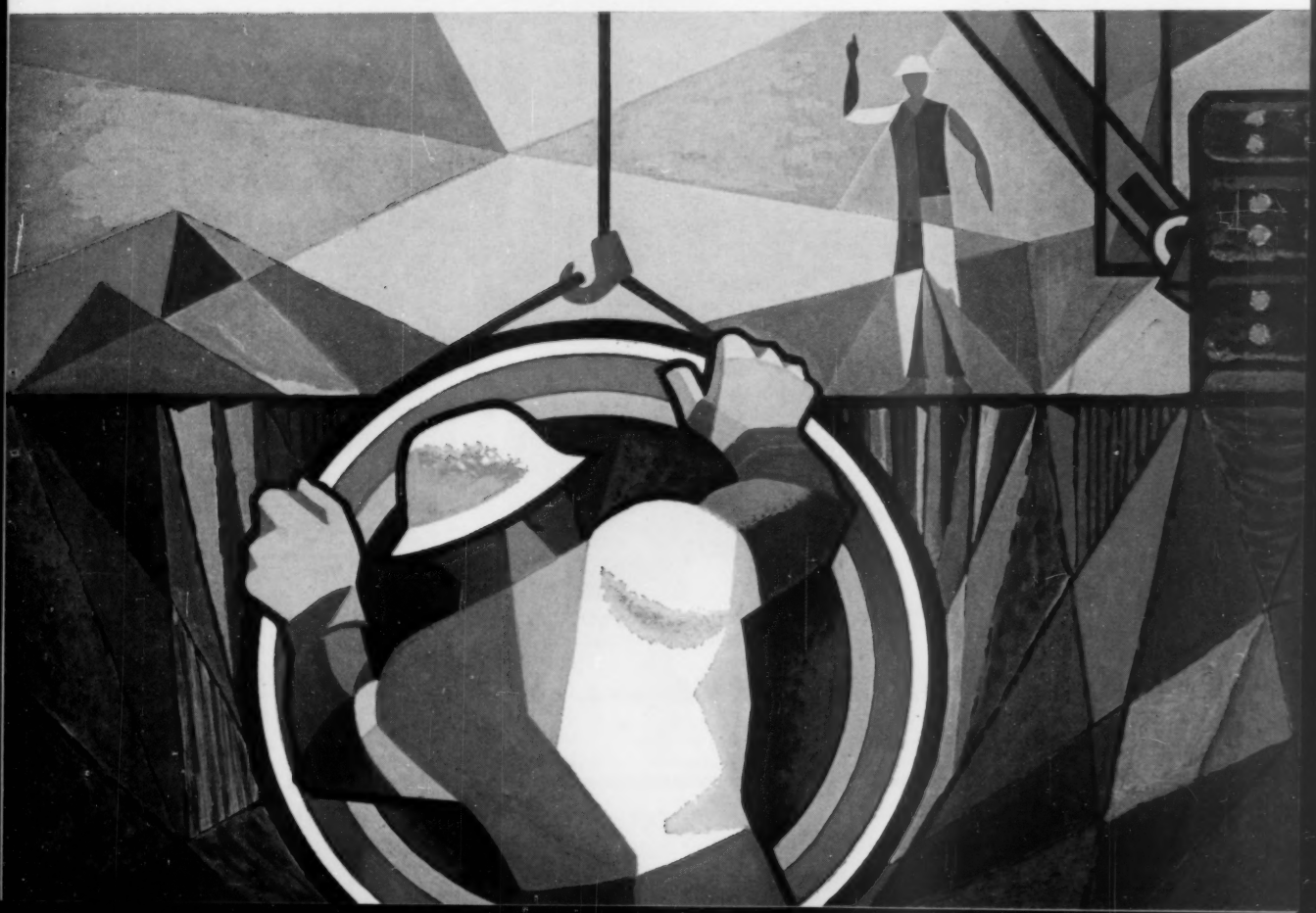
LONG-TERM ECONOMY

EASE OF INSTALLATION

American Concrete Cylinder Pipe is easy to install, a fact that many contractors have proved repeatedly. Standard laying lengths of 32 feet together with carefully scheduled and executed trenchside delivery reduce handling time to a minimum. ■ The joints of American Concrete Cylinder Pipe are fabricated of accurately sized steel bell and spigot rings which mate perfectly and easily every time. A rubber gasket provides a permanent watertight seal which eliminates the need for tedious caulking and skilled workmen. ■ Properly installed, American Concrete Cylinder Pipe can be backfilled immediately after jointing is completed thereby reducing open trenches to a minimum. ■ The ease and confidence with which you can install American Concrete Cylinder Pipe is only one of the reasons it should be considered for your next pipeline project. Let an American Sales Engineer tell you about the many other long-term economies available to you.

American Pipe and Construction Co. • Los Angeles • San Diego • Hayward • Portland
Bogota, Colombia / **American Concrete Pipe Co. (subsidiary)** • Phoenix • Albuquerque
A MEMBER OF THE AMERICAN CONCRETE PRESSURE PIPE ASSOCIATION

American
PIPE AND CONSTRUCTION CO.



Here's what makes a good hydrant better . . .

The NEW KENNEDY K-11

Safetop Model

Absolute minimum of parts . . .

"O" Ring weather seal . . .

"O" Ring pressure seal . . .

Alemite grease fitting located in operating nut, easily accessible for lubrication

Safety Breakable Section

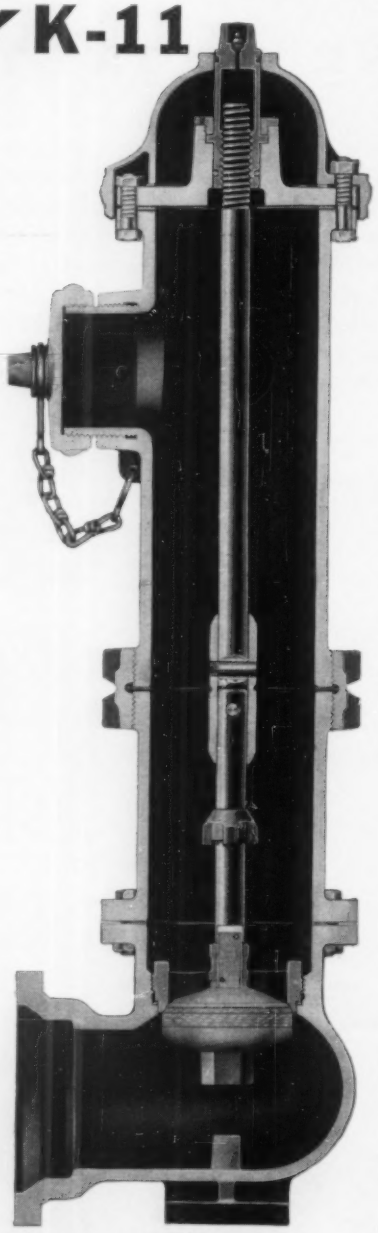
Full diameter stem threads for maximum strength and easy operation

Nuts and bolts of rust-proofed steel

• *Before you specify, get all the hydrant facts from KENNEDY. Write for Bulletin 591.*

•

The K-11 Fire Hydrant conforms to A.W.W.A. specifications and is available in three sizes, 4, 4½ and 5 inch and in a variety of pipe end connections.



KENNEDY'S NEW K-11 FIRE HYDRANT

KENNEDY VALVE MFG. CO.

ELMIRA, NEW YORK

• OFFICES AND WAREHOUSES IN PRINCIPAL CITIES

DUCTILE IRON VALVES • CAST IRON VALVES • BRONZE VALVES • INDICATOR POSTS • FIRE HYDRANTS

YOU NEED *These catalogs*

Write to address given or circle corresponding number on free post card on page 53.

All-Weather Materials Spreader

430 It's versatile. It's low in cost. It delivers big results. *It* is the TG-600 Rollgate spreader, a hydraulically-driven roll-type unit that attaches to any 7½ or 8-foot dump truck body and works as well in sealcoating operations as it does in control work. For descriptive literature, write GOOD ROADS MACHINERY CORP., MINERVA, OHIO.

Power Mowers

431 Full information on a high-wheel rotary mower, ideal for hard-to-get-at mowing jobs, rough terrain, or areas cut infrequently, can be obtained from JACOBSEN MFG. CO., DEPT. AC9, RACINE, WIS. Ask, also, about another heavy-duty unit, the Mow-Mobile.

Water, Sewage, Gas Services

432 The efficiency, economy and foolproof operation Apco long-length Super DeLavaud cast iron pipe with bell and spigot, Altite or Mechanical joints bring to water, sewage and gas line services are described in literature available from ALABAMA PIPE CO., ANNISTON, ALA.

Power for Work Boats

433 Here's a stouthearted outboard that operates at peak efficiency in any weather, in any water. It's called the Big Twin and is rated 40 hp at 4500 rpm. So if you're interested in a motor for municipal waterfront operations that is constant and rugged, write EVINRUDE MOTORS, 4143 N. 27TH ST., MILWAUKEE 16, WIS.

Traffic Marking Materials

434 Reflective traffic marking materials are constantly being improved. So if you want to be brought up to date on the subject by a world leader in the field, write to PRISMO SAFETY CORP., HUNTINGDON, PA.

Valve Boxes and Other Castings

435 Have you seen the latest bulletin prepared by OPELIKA FOUNDRY CO., P. O. BOX 326, OPELIKA, ALA.? It presents a complete line of service and roadway boxes, manhole rings and covers, and adjustable two- and three-piece valve boxes that will fully protect your water and gas distribution valves.

Fire Control In Growing City

436 THE ELECTRONIC CONTROL DIVISION, GENERAL RAILWAY SIGNAL CO., ROCHESTER 2, N. Y., reports on the GRS Master Dispatch System, developed to provide coordinated fire control for the expanding metropolis, giving effective command of every situation through the coordination of all metropolitan fire control facilities, providing accuracy despite complexities.

Speeds Pipe Installation

437 In its current bulletin, EARTH-WORM BORING MACHINE INC., P. O. BOX 1100, 1415 14TH ST., SANTA MONICA, CALIF., fully describes its underground boring machine for installation of pipe and conduit which bores holes up to 250 feet in lengths, up to 6 inches in diameter without any surface break.

(See page 58 for more Bulletins)

REVOLUTIONARY ADVANCE IN SEWER LINE MAINTENANCE

ND-25 SEWER SOLVENT FROM

NATIONAL CHEMSEARCH®

UNCLOGS SEWER LINES DISSOLVES GREASE, ROOTS, CELLULOSE

Activated by liquid in your lines, National's ND-25 generates heat and agitation when poured into a manhole, removing and loosening debris. ND-25 will saponify and emulsify greases and oils... digest roots, paper and other material containing a high percentage of cellulose. More, it's colored for extra convenience. Add ND-25 to strategic manholes and see its effectiveness throughout your sewer line system by observing traces of this color in other areas of the system.

For on-the-spot assistance, see your National Chemsearch representative. Well trained, experienced in dealing with your kind of problems... backed by one of the finest research staffs in the industry.

Leader in Chemical Research — Since 1919

NATIONAL CHEMSEARCH CORP.
DALLAS • LOS ANGELES
ST. LOUIS • NEW YORK

address all inquiries to: National Chemsearch; 2417 Commerce; Dallas, Texas

MONEY SAVING *catalogs*

Write to address given or circle corresponding number on free post card on page 53.

Gives Complete Flow Information in Less than 1/4 Panel Space

438 *Technical Bulletin* CF-390 illustrates, describes and gives specifications for the new Sparling strip chart indicator, totalizer, recorder for water plant application. The compact unit uses standard components, yet requires only a bit more than a 6-inch panel area. Write HERSEY-SPARLING METER CO., 225 N. TEMPLE CITY BLVD., EL MONTE, CALIF.

Free Water, Sewage Plants from Power Interruptions

439 Two engineering bulletins offered by JOHNSON GEAR & MFG. CO., LTD., 8TH AND PARKER STS., BERKELEY 10, CALIF., give facts, application data and specifications for Right Angle gear drives, which insure against power failure in water, sewage and fire services. Request *Catalogs* 31 and 32.

Trouble-Free Control for Pneumatic Ejectors

440 YEOMANS, 2000-3 N. RUBY ST., MELROSE PARK, ILL., announces a new electronic control for its electrically controlled pneumatic sewage ejectors. Called Yeotronic, this transistor-operated unit handles wastes without fouling, has only one short sensor, eliminates electrode cleaning.

The Solution to Your Parking Problems . . . Automatically
Lower Cost—Higher Revenue

Before you consider any other method of controlling off-street parking—investigate Parcoa! Make a careful comparison between Parcoa equipment and other parking controls. Note, for example, the low initial cost of Parcoa and the high costs of meters . . . Analyze maintenance problems . . . 2 gates means 2 points of service . . . 1 collection point . . . 50 meters means 50 points of service and 50 points of collection.

Parcoa permits parking to continue day and night, *smoothly, safely, quickly*, without interruptions, confusion or overcrowding.

Here is an automatic system designed by skilled engineers for operating simplicity, low first cost, low operating cost . . . an investment that actually pays for itself. Parcoa offers 100% collection . . . ease of maintenance. Hundreds of satisfied customers in industry, hospitals, schools, business and municipalities have proved the dependability and efficiency of Parcoa equipment.

Investigate Parcoa—learn the many benefits and advantages . . . It may be the solution to your parking problems, too . . . Write today for Bulletin No. 580.

FLEXIBLE OPERATION
These control types give you a choice of individual or combination of controls to fit your needs.

CODED CARD-KEY
for cars parking on monthly or reserved basis.

COIN OPERATION
for controlled transient parking.

TICKET ISSUING SYSTEM
for merchants restricted free parking service.

TIME-DATED TICKET DISPENSER
for automatic self service in merchant participation parking.

PARCOA® DIVISION
JOHNSON FARE BOX COMPANY • Subsidiary of BOWSER, INC.
4621 North Ravenswood Ave., Chicago 40, Illinois • Telephone: LOngbeach 1-0217
DISTRICT FIELD OFFICES: NEW YORK: 420 Lexington Ave., New York 17, N.Y. CLEVELAND: 4209 W. 150th St., Cleveland 11, Ohio. SAN FRANCISCO: 468 Ninth Street, San Francisco 3, Calif. ATLANTA: 741 Boulevard N. E., Atlanta 5, Georgia.
SALES AND SERVICE OFFICES IN OTHER MAJOR CITIES LISTED UNDER BOWSER, INC.

If It's Got to Be Fenced

441 Whatever the reason for fencing in areas or property, you'll want a sturdy fencing material that can be depended upon to stand up under hard usage with very little maintenance. ANCHOR FENCE, 6566 EASTERN AVE., BALTIMORE 24, MD., can give you full facts on such fence—in fact, tell you how a school system used it to solve some unusual traffic problems.

Better Surface Treatment for New or Reconstructed Pavement

442 Here's a material that will help you get better surface treatment. It's called Cationic Bitumuls and shows unusual ability to hold aggregate and to set rapidly, which minimizes damage from early rainfall. Catalog literature gives full facts; write AMERICAN BITUMULS & ASPHALT CO., 320 MARKET ST., SAN FRANCISCO 20, CALIF.

1961 Chevrolet Trucks

443 The 189 models in the 1961 Chevrolet Sturdi-Bilt truck line can handle just about every hauling chore. Engines meet the needs of every weight class; cabs are roomy; ride is smooth; chassis tough and brawny. For detailed run down, write CHEVROLET DIVISION OF GENERAL MOTORS, DETROIT 2, MICH.

New "Crab" Tractor

444 Mobility and maneuverability in cramped quarters are the outstanding features of the versatile new Crab tractor. To learn about all the advantages of this four-wheel drive tractor, write for brochure *Form* CT-1-6/60 to R. J. RAYBACK, SALES MANAGER, CONSTRUCTION EQUIPMENT DIV., NAPCO INDUSTRIES, INC., 834 N. SEVENTH ST., MINNEAPOLIS 11, MINN.

Seals Leaking Gas Mains Internally

445 In this 8-page booklet, WEST CHESTER CHEMICAL CO., 439 S. BOLMAR ST., WEST CHESTER, PA., explains how Con-Seal quickly, permanently and at low cost internally seals leaking bell and spigot joints in cast-iron gas mains, upgrading operating pressures and eliminating clogging. Method of application is illustrated.

Cut Snow Removal Costs 3 Ways

446 You can with an air-cooled, 4 cylinder, 56-hp Wisconsin engine powering snow removal attachments like the Sno-Thro on your rolling stock. The full story is told in *Bulletin* S-251, which will also introduce you to the entire Wisconsin engine line. For a copy, write WISCONSIN MOTOR CORP., MILWAUKEE 46, WIS.

Largest Cat Wheel Loader

447 Design and engineering details of the 966, largest of Caterpillar's wheel Traxcavator line, are described in this newly-released 12-page booklet, *Form* No. 33915. Features which contribute to the quick response performance, versatility and operator safety and convenience are covered in detail. For a copy, write CATERPILLAR TRACTOR CO., PEORIA, ILL.

Sewage Disposal by Aerobic Digestion

448 In new 12-page *Bulletin* SM-1010, THE EIMCO CORP., P. O. BOX 300, SALT LAKE CITY 10, UTAH, describes recent development in equipment for low-cost, high degree purification of small sewage flows and aerobic digestion, a simplified treatment process in which 85-95% suspended solids and BOD reductions are achieved in 28 hours treatment time.

(See page 62 for more Bulletins)

SAFE OR SORRY

WHAT'S YOUR CHOICE FOR WINTER ICE CONTROL?

Rock Salt is safe: Rock salt never allows ice or snow to remain and form dangerous ruts. All the snow and ice is melted away or left in condition for easy mechanical removal.

Rock Salt is clean: Rock salt leaves a dry pavement. The only thing left after rock salt does its work is a harmless white re-crystallized salt. It needs no cleaning up in the spring or any other time.

Rock Salt is harmless: Rock salt does no harm to people's hands, clothing, shoes or rugs. It does not affect in any way materials such as wood, rubber, leather or plastics.

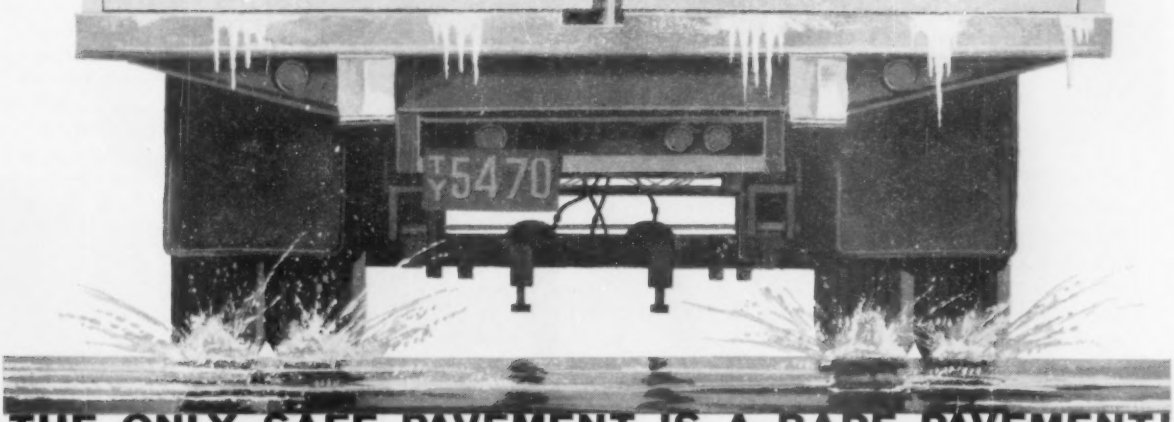
Rock Salt is economical: A truckload of rock salt goes a long way; covers five times more mileage than the same truckload of abrasives—speeds road safety, saving money and time. And rock salt does not have to be spread completely over the entire road surface.

Abrasives are dangerous: Abrasives just lie there . . . actually retard melting by forming a crust over snow and ice. They never remove ice or snow . . . and they leave dangerous ruts.

Abrasives are dirty: When sun finally melts pavements clear, abrasives leave a residue which eventually dries to become clouds of dust and sewer-clogging bulk. Abrasives cause expensive spring cleanup of gutters, catch basins, storm sewers.

Abrasives are damaging: They chip paint and chrome, exposing base metal to corrosion. Tracked into buildings, they injure every kind of floor. Abrasives are hard on yards and spreading equipment, too.

Abrasives don't go far: They must be spread many times in one storm because just ¼ inch of snow will make them ineffective. Abrasives must completely cover a road—missed areas have no protection. Frequent reloading slows ice control operations.

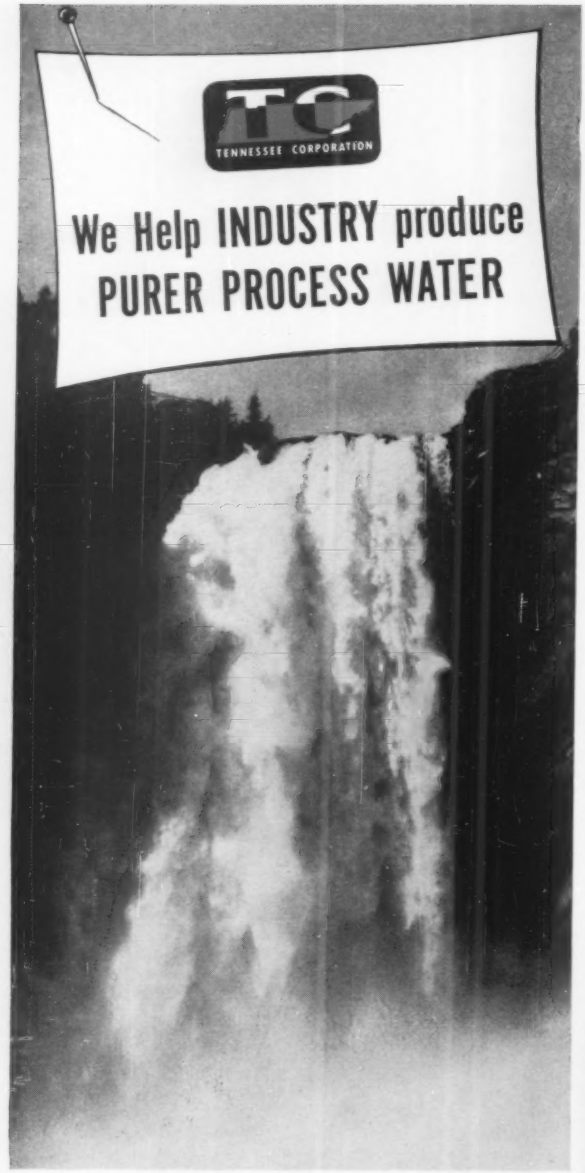


THE ONLY SAFE PAVEMENT IS A BARE PAVEMENT!

INTERNATIONAL STERLING SALT SALT COMPANY

"A STEP AHEAD IN SALT TECHNOLOGY"

BUFFALO • BOSTON • CHARLOTTE • CHICAGO • CINCINNATI • DETROIT • NEWARK • NEW ORLEANS • NEW YORK • PHILADELPHIA • PITTSBURGH • ST. LOUIS • HEADQUARTERS, CLARKS SUMMIT, PENNSYLVANIA



We know we can help you with Coagulation, Softening, Iron and Manganese removal, Corrosive Water and Filtration. We have years of experience in this field, and our FERRI-FLOC (Ferric Iron Sulfate) does an outstanding job in producing purer process water. And, of course, we offer reliable technical assistance — Let us tell you about it.

For complete list of our products see our inserts in Chemical Week Buyers' Guide, Pages 173-176 or Chemical Materials Catalog, Pages 551-554.

For Further Information, Write, Phone or Wire us.

TENNESSEE CORPORATION
612-629 Grant Building, Atlanta 3, Georgia

HOW TO BUY THE BEST CHIPPER FOR YOUR NEEDS

1. **Ask for a Free Demonstration.** Your dealer will gladly demonstrate the new 1960 Asplundh . . . will even run it side-by-side with any other chipper to let you compare machines and results.

2. **Look for the features that give you these benefits.**

Chipping Speed. By actual test Asplundh is the fastest chipper made—which your dealer will gladly prove.

Low maintenance cost. The Asplundh has fewer moving parts. This means lower maintenance, less down time.

Safety to workers and passers-by. Asplundh blades are tapered and wedged—cannot fly out.

Ease of operation. Unskilled labor can operate the Asplundh with ease—change blades quickly.

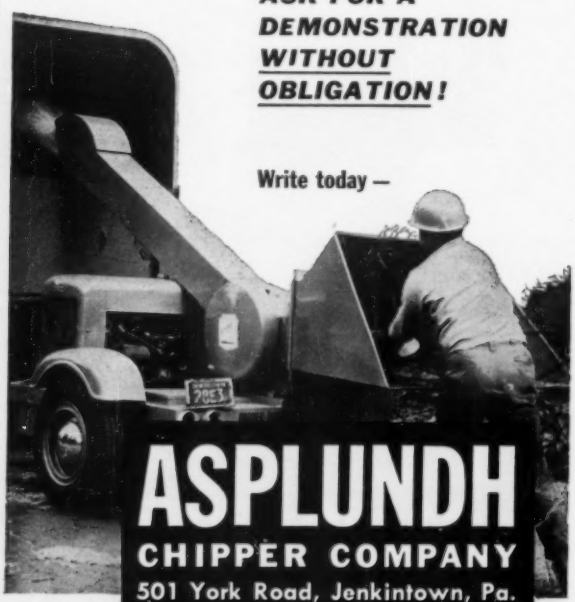
Highway safety. Asplundh's underslung engine and axle place the center of gravity low for safe, true highway tracking.

Big capacity. Asplundh chips all you can feed it—limbs up to 6" diameter—hour after hour, day after day.

3. See for yourself why Asplundh outsells all other makes. Write for new brochure of testimonials from satisfied users.

ASK FOR A DEMONSTRATION WITHOUT OBLIGATION!

Write today —



ASPLUNDH
CHIPPER COMPANY
501 York Road, Jenkintown, Pa.
TUrner 7-2500

Proven in service by the world's largest tree company

Solve your litter problems

at a cost your budget won't feel

New Superior waste receptacle lease program does it without tying up cash

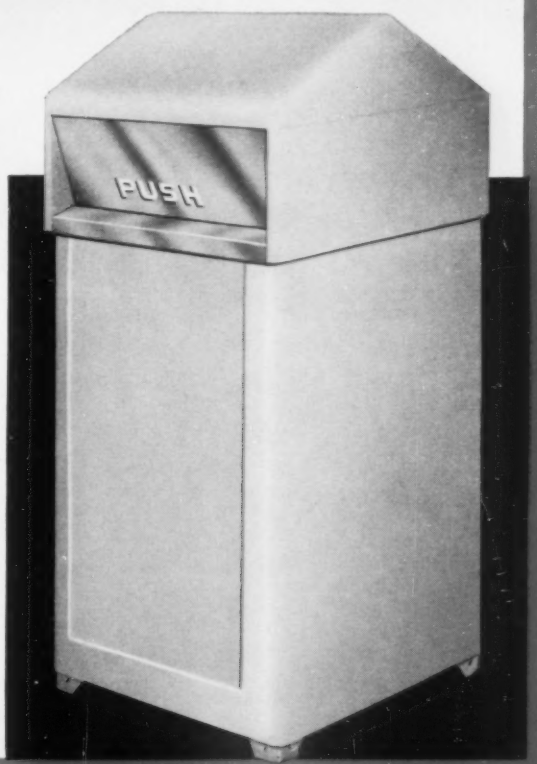
If you're being held back in your litter control efforts by high costs, you'll want to know more about John Wood Company's Superior Metalware new Litter Control Leasing Program. With only pennies a day to amortize over several years, you can equip your area, whether an entire city or a single shopping center, with leased Superior waste receptacles to adequately handle your litter problem.

Under this plan you receive the Superior Litter Control Service –

- Technical advice on how many waste receptacles you require
- Advice on placement, size, and type
- Delivery of receptacles free of charge

– and you're equipped with the finest all-purpose, indoor-outdoor waste receptacle, Superior Weathermaster. It's the only rainproof, snowproof (even fireproof) unit available.

It has "Galvanealed" steel for rust-free, long-life service; individually swinging stainless steel flaps to keep rubbish dry for easy collection; and hinged fold-back top for simple emptying.



Better Litter Control Means Better Business

For municipality, shopping center, anywhere litter is a problem, clean, litter-free streets and areas attract and hold business. People look to you for this service.

SUPERIOR

JOHN WOOD COMPANY
SUPERIOR METALWARE DIVISION
509 FRONT AVENUE, ST. PAUL 17, MINN.

Fill in and mail for full information on the Superior Litter Control Program

Please send me complete information on the Superior Litter Control Program.

NAME.....

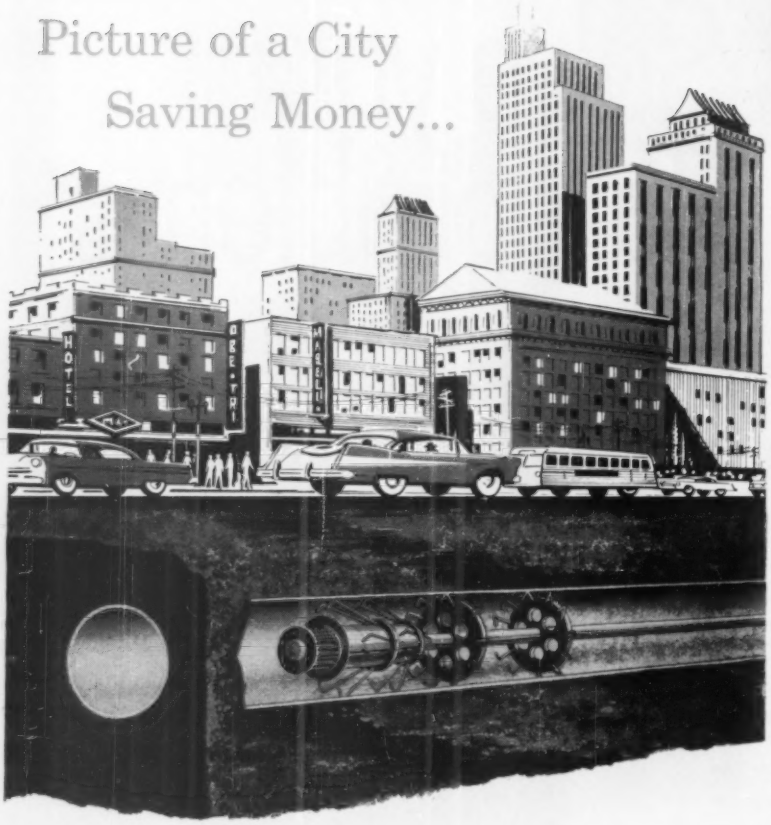
TITLE.....

ADDRESS.....

CITY..... ZONE..... STATE.....

ESTIMATED NUMBER CONTAINERS REQUIRED.....

Picture of a City
Saving Money...



Spunline Relines Pipe Lines in-place without removing the pipe

Another city such as Spokane, Dallas, or Los Angeles will soon be enjoying the savings of another rehabilitated pipe line. The flow will increase, the pumping cost will drop and the pipe line will be good as new for at least another quarter of a century.

And traffic will move without interruption or inconvenience to the public.

Spunline® is applicable to pipe lines down to 4" and may be used in cast iron, steel, concrete and wrought iron pipe lines.

Write, wire or phone **PIPE LININGS Inc.**

Subsidiary of American Pipe and Construction Co.

2414 East 223rd Street, Wilmington, California
P.O. Box 457 • Phones: SPruce 5-3273 — TErminal 5-8201
Rail Address, Pacific Electric, Watson, California

MONEY SAVING *catalogs*

Write to address given or circle corresponding number on free post card on page 53.

Tapered Steel Lighting Tubes

449 For area and floodlighting that's up to date, specify Tulito tapered steel lighting tubes. They're especially engineered for permanence, strength and safety and accommodate from 2 to 40 lights. For illustrated fact-giving brochure, write MEYER MACHINE, INC., P. O. BOX 131, RED WING, MINN.

For Smoother Resurfacing and Ice Control Operations

450 Want to handle winter ice-control problems faster, safer, more efficiently? Speed summer construction jobs, dust control, soil stabilization? Then you'll want information on the *Summer-Winter* spreader from SWENSON SPREADER, LINDENWOOD, ILL.

Aluminum Swimming Pools

451 In this 8-page bulletin CHESTER PRODUCTS, INC., BELLE AVE. AND B & O R.R., HAMILTON, OHIO, explains why these pools cost less per year to maintain than any other pool, explains its free pool planning service, discusses installation (indoor and outdoor), and includes a cross section diagram of its Diavac swimming pool filter.

How to Clean a Beach

452 Literature offered by LOCKWOOD GRADERS, GERING, NEBR., tells how the Beach Cleaner can help you achieve new efficiency in beach cleaning and explains how this machine moves under the surface to gather everything from cigarette butts to items 12 inches in diameter.

Sanitary Washfountains

453 New *Catalog* 6004 will acquaint you with these foot-controlled washfountains, which are ideal for installation in public buildings, schools and hospitals. The bowl rinses clean and is easier to keep sanitary. Write BRADLEY WASHFOUNTAIN CO., 2333 W. MICHIGAN ST., MILWAUKEE 1, WIS.

From Dump Truck to Ice Fighter in 20 Minutes

454 When you team a rugged, gravity feed Tarco dump body "Watchman" hopper with a cab-controlled "Scotchman" spreader you get an ideal one-man operated unit for spreading straight de-icing salts and safety on your streets this winter. For full facts, write TARRANT MFG. CO., 23 JUMEL PLACE, SARATOGA SPRINGS, N. Y.

Time Recording Equipment

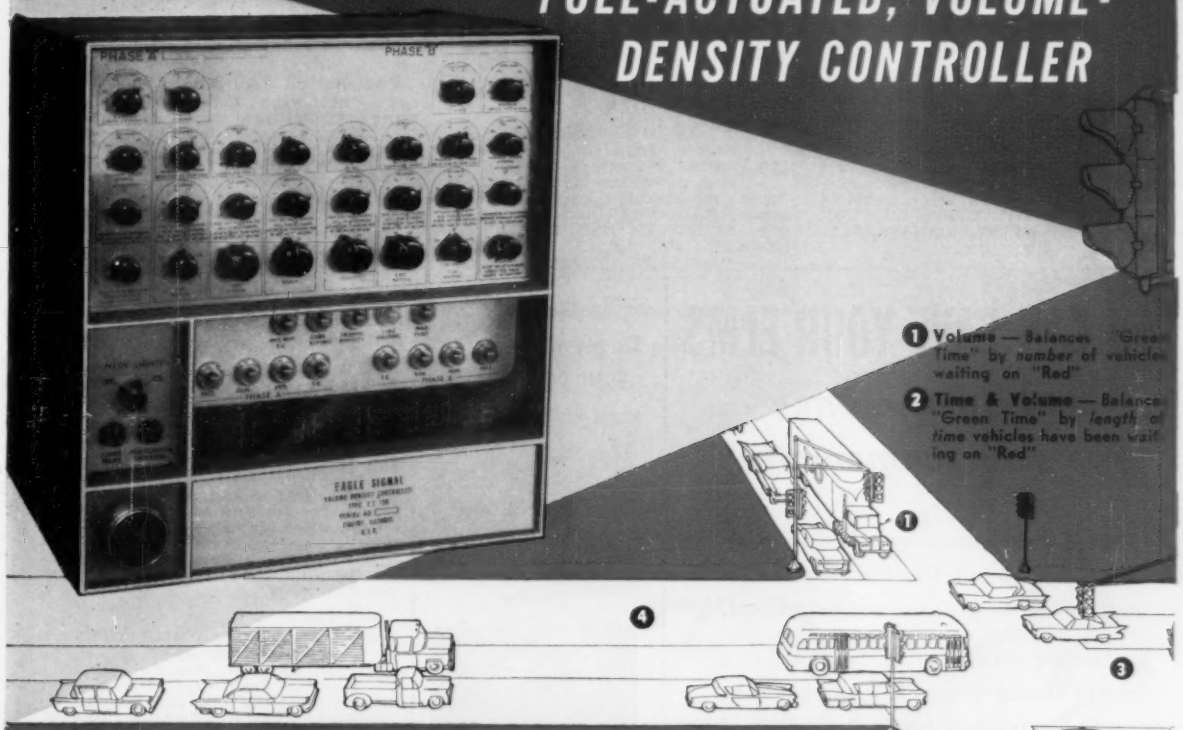
455 An increasing number of municipal departments are discovering the increase in efficiency and elimination of time leaks brought about by these machines, which include time recorders, time stamps, watchman clocks, etc. For full details and applications, write LATHEM TIME RECORDER CO., 82 THIRD ST., N.W., ATLANTA, GA.

Water Works Catalog

456 It's new, it's illustrated, and it's packed full of valuable information on complete lines of couplings, repair clamps and sleeves, reports DRESSER MANUACTURING DIVISION, DRESSER INDUSTRIES, INC., BRADFORD, PA.

(See page 64 for more Bulletins)

NEW EAGLE ET150 TWO-PHASE FULL-ACTUATED, VOLUME-DENSITY CONTROLLER


1 Volume — Balances "Green Time" by number of vehicles waiting on "Red"
2 Time & Volume — Balances "Green Time" by length of time vehicles have been waiting on "Red"
1
2
3
4

BALANCES "GREEN TIME" AT BUSY TWO-STREET INTERSECTIONS FOR MOST EFFICIENT TRAFFIC FLOW

With the new EAGLE ET150, the solution to your high volume problem intersections is now available from EAGLE. Operating basically on the concept of vehicle extension of green after initial interval up to maximum extension, the new ET150 controller goes one step further, *balancing the vehicle extension as dictated by traffic variations.*

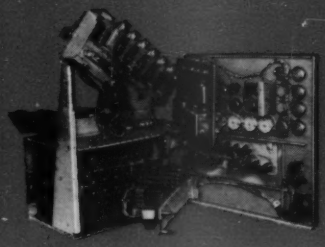
"Green Time" for both streets is automatically varied by the new EAGLE ET150 based on three factors:

- The TIME vehicles have been waiting at opposing red;
- The NUMBER of vehicles waiting at opposing red;
- The DENSITY of vehicles moving on green.

So efficient is the EAGLE ET150's control at heavy traffic intersections, co-ordinated movement with similar adjacent intersections can be achieved without electrical or electronic interconnection.

3 Density — Balances "Green Time" by *rate of flow* of vehicles on "Green"

4 Memory — The ET150 has platoon carry-over feature



- Easy access to all parts for visual inspection
- Improved readily defined pilot lights
- Jack connected switching mechanism

Contact your nearest Eagle Representative or mail coupon today

EAGLE SIGNAL • Moline, Illinois
A DIVISION OF THE GAMEWELL COMPANY, AN E. W. BLISS COMPANY SUBSIDIARY

Eagle Equipment Saves Lives — Saves Time

EAGLE SIGNAL COMPANY, Municipal Division
Dept. AC 1060 , MOLINE, ILLINOIS

Please send me complete specifications on the new EAGLE ET150 Two-Phase, Full-Actuated, Volume-Density Controller.

NAME AND TITLE

ORGANIZATION

FULL ADDRESS

CATALOGS *for Improved Municipal Services*

Write to address given or circle corresponding number on free post card on page 53.

Renew Concrete Structures the Easy Way

457 How Gunite renews and repairs, economically, permanently and easily, concrete tanks, reservoirs, sea walls, sewers, bridges, filter plants and other concrete structures is thoroughly explained in literature from INDIANA GUNITE & CONSTRUCTION CO., INC., 226 N. ALABAMA ST., INDIANAPOLIS, IND.

Achieving Proper Refuse Incineration

458 This 12-page brochure discusses the problem of proper refuse destruction, lists ten basic requirements for proper destruction, shows how International incinerators meet these requirements, and touches on the problem of fly ash control. For your copy, write INTERNATIONAL INCINERATORS, INC., WALTON BLDG., ATLANTA 3, GA.

Dependable Help for Water Lines

459 Several models of dependable air control valves, designed to keep long water lines open for safe, efficient economical operation, are discussed in current literature, available from MULTIPLEX MFG. CO., DEPT. E, BERWICK, PA.

Unclog Sewer Lines

460 It's easy when you use ND-25. For this liquid chemical, which is applied at the manhole, generates heat and agitation to remove and loosen debris, and dissolve grease, roots and cellulose. And it's colored so you can trace its effectiveness throughout the line. Ask NATIONAL CHEMSEARCH CORP., 2417 COMMERCE, DALLAS, TEXAS, for descriptive literature.

Recreation Equipment

461 In General *Catalog* 59 you'll find 30 illustrated pages of fittings and equipment for tot lots, school and park playgrounds, swimming pools and basketball courts. For a copy, write THE EVERWEAR MFG. CO., INC., P. O. BOX 284, NEWPORT, KY.

Plastic Trash Receptacles

462 Refuse collection people will be greatly interested in this heavy-duty, 32-gallon plastic trash can, both as a carry-out can and as a trash container in various installations. It's available in a choice of colors and can be steam cleaned. LOMA INDUSTRIES, 3000 W. PAFFORD ST., FORT WORTH, TEXAS, can give you the full story.

Flexible Expansion Joints

463 Do your expansion joints stiffen up, crack, fail when handling severe chemicals? Then you'll want to obtain this booklet on joints of butyl rubber construction lined with Teflon, which are recommended for handling most chemicals and solvents. Write MECHANICAL GOODS DIV., UNITED STATES RUBBER, ROCKEFELLER CENTER, NEW YORK 20, N. Y.

Concrete Lighting Standards

464 *Catalog* No. 400 offers complete information on attractive, low-maintenance Stress-Spun concrete street lighting standards. For your copy, write AMERICAN CONCRETE CORP., 5092 N. KIMBERLY AVE., CHICAGO 30, ILL.

Filing System Outmoded?

465 Then you'll want to review this 32-page illustrated booklet, recently published by the WASSELL ORGANIZATION, INC., WESTPORT, CONN. It will put you on the road to a faster, more efficient filing-finding system that's noise-free, step-saving and smoother operating. Request "Work Organizers for the Sixties."

Vertical Turbine Pumps

466 This is the title of an 8-page illustrated bulletin on Floway pumps, which are designed for varying capacities (range from 15 gpm) and for all types of driver units. Cross-section diagrams of oil lubricated and water lubricated units are included. For a copy, write FIESE & FIRSTENBERGER MFG., INC., 2494 RAILROAD AVE., FRESNO, CALIF.

Save $44,952 a Year

467 County of McHenry, Woodstock, Ill., does just that by employing a flexible, accurate National accounting system to handle tax billing, tax receipting, classifying, and distributing procedures. For full facts, write THE NATIONAL CASH REGISTER CO., DAYTON, OHIO.

To Control Mosquitoes Better

468 Construction features, operation details, and advantages of using the compact See-Fog insecticide fog applicator in your mosquito control program are presented in a 4-page illustrated bulletin, available from THE SEEBURG CORP., CHICAGO 22, ILL.

(See page 66 for more Bulletins)

YOU CAN SAVE YOUR ELMS

and save money for your community

Even if your community is in an area already infected with Dutch elm disease, it's not too late to save elms not yet infected.

Leading authorities recommend that a single annual dormant spray should be applied at any time following leaf fall and before emergence of leaves in spring. Remember—it's much less costly to have Davey spray and save, than to cut down dead elms and burn them.

Davey's trained, experienced men, using the finest modern equipment and long-proved techniques, can do the best job of saving your elms—and your community's money. Davey representatives will be glad to supply prompt information concerning the control of Dutch elm disease in your area. Let the Davey Tree Expert Company help keep your community attractive to industry and residents by protecting your grand old elms and other trees.

Services Davey will provide your community

Pruning

Highway Spraying

Mist Spraying

Disposal of Pruned Branches with Chipper

DAVEY TREE EXPERT CO.

DAVEY TREE EXPERT CO.

Kent 16, Ohio

MARTIN L. DAVEY, JR.
President

THE OLDEST AND LARGEST TREE SAVING SERVICE IN THE WORLD

SOME OF THE FINEST COMMUNITIES IN THE UNITED STATES HAVE INSTALLED

F&E *multi-cell Incinerator Stokers*

THERE MUST BE A REASON!

- *Complete flexibility of operation*
- *Utmost in economy —reduced labor*
- *Rugged construction —lifetime dependability*
- *Progressive burning for maximum results*

Chicago, Ill., 1920 tons - Detroit, Mich., 2860 tons - Boston, Mass., 900 tons - Cleveland, Ohio, 1400 tons - Washington, D. C., 1000 tons - St. Louis, Mo., 1000 tons - Baltimore, Md., 1400 tons - New Orleans, La., 800 tons - Oyster Bay, N. Y., 500 tons - Cincinnati, Ohio, 400 tons - Columbus, Ohio, 541 tons - Stamford, Conn., 375 tons - Milwaukee, Wis., 300 tons -
Omaha, Neb., 375 tons -
Rochester, N. Y., 200 tons -
Alexandria, Va., 200 tons -
E. Hartford, Conn., 200 tons -
White Plains, N. Y., 400 tons
. . . and many, many more.

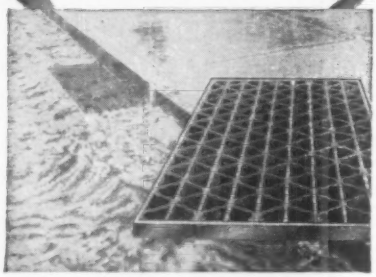
F&E Multi-Cell Incinerator Stoker installations represent a tonnage of over 20,000 tons daily.

F&E

FLYNN & EMRICH

BALTIMORE 2, MARYLAND

FLOODED HIGHWAYS HINDER TRAFFIC

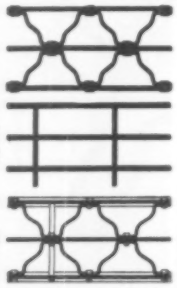


OLD heavy cast iron draingrates, averaging at best 40% clear opening, often fail to carry off rain water fast enough during heavy downpours, resulting in flooded highways—particularly at underpasses. Also, cracked draingrates must be replaced.

With open steel mesh draingrates, larger clear openings reduce the likelihood of flooded highways considerably.

Irving "Dryway" Draingrates are 75% open for greater drainage and are made of steel bars on edge, not subject to cracking.

Available in three basic designs:



Write for brochure on "Dryway" Draingrates
Self-maintaining, Lightweight, Economical, Safe

IRVICO

IRVING SUBWAY GRATING CO., Inc.
Originators of The Grating Industry Est. 1902
Offices and Plants at:
5030 27th St., LONG ISLAND CITY 1, N. Y.
1830 10th St., OAKLAND 20, CALIFORNIA

FREE catalogs

You will find of interest

Write to address given or circle corresponding number on free post card on page 53.

Highlights Fluorescent Luminair

469 A high-powered, low-cost fluorescent, suitable for school, park, playground and residential lighting, can be serviced from the ground. It's called Regal-Lite and is described in a facts-and-figures brochure, available from STERNER INDUSTRIES, INC., WINSTED 1, MINN.

Optical Transit for City Engineers

470 KEUFFEL & ESSER CO., DEPT. AC-9, HOBOKEN, N. J., report complete details are available on the Theodolite Model KE-6e, which reads direct to 1 minute, with estimation to 6 seconds. It is said to be ideal for running transverses, laying out curves, land surveys, topographic-surveys and all general surveying operations.

Sewer Cleaning Equipment

471 In this 32-page catalog you'll find just about everything needed for cleaning sewers—rods, nozzles, root harpoons, flushing equipment, buckets, cables, braces, guide jacks, boom, stoppage drags, and the Turco Maxi-Power saver cleaning machine. Write TURBINE SEWER MACHINE CO., 1303 N. FOURTH ST., MILWAUKEE 12, WIS.

It's Specifically Designed for Municipalities

472 This 8-page illustrated brochure gives all particulars on the Roadmaster, a self-contained hot asphalt plant with fully automatic aggregate batching and asphalt metering. For a copy, write WYLIE MFG. CO., INC., P. O. BOX 7086, OKLAHOMA CITY 12, OKLA.

New Type of Gas Detector

473 This Air Density Monitor announced by DETETOGAS INSTRUMENTS, INC., 3110 EASTSIDE, HOUSTON 6, TEXAS, guards against disastrous gas explosions by detecting both lighter and heavier-than-air gases, monitoring continuously, automatically (without moving parts or power), triggering any type of alarm system. Literature explains operation, applications.

Municipal Incinerator Facts

474 This is the title of *Bulletin* 111-C which can be obtained from a firm with 70 years experience in solving waste disposal problems. It will put you on the right road to incineration with air pollution control. For a copy, write MORSE BOULGER, DEPT. 26, 80 FIFTH AVE., NEW YORK 11, N. Y.

Avoid Errors, Save Postage

475 PITNEY-BOWES, INC., 8581 WALNUT ST., STAMFORD, CONN., tells you how you can reduce postage costs in its current booklet on mailing scales, which gives full facts on the company's complete line of precision units. Also available, without cost, is a desk or wall chart of postal rates, with parcel post map and zone finder.

Prefabricated Steel Buildings

476 Many a community will find a ready solution for low-cost building expansion in the Spartan, an economical, weathertight and fireproof steel structure adaptable to a wide range of municipal uses. A 4-page bulletin gives the facts; write MARTIN STEEL CORP., MANSFIELD, OHIO.

Heater Planer Smooths Asphalt

477 Do you have asphalt streets or airport runways that are rutted or rough? Then you'll want to write for information about the Asphalt Road Heater Planer to MONATCO MFG. CORP., 1401 WOODLAND, KANSAS CITY, MO. Users report level surfaces restored for less than 10 cents per yard.

What's New in Lighting Standards

478 Searching for a lighting standard that's sturdy in construction yet graceful, clean and simple in line for your parking lots, approaches, streets and thoroughfares? Then why not ask MILLERBERND MFG. CO., WINSTED 1, MINN., for a copy of *Booklet* OTA, which shows new developments in fluorescent-type standards.

Deodorant Discs

479 If you're looking for an economical, laborless way to deodorize urinals, bowls, garbage pails, lockers, etc., write THE C. B. DOLGE CO., WESTPORT, CONN., for current literature on Rounds.

Cost-Saving Electric Plants

480 *Folder* H-45 will acquaint you with a complete line of electric plants for emergency use or portable power. Available in sizes up to 100 kw, gasoline or diesel, they can provide the power you need for street repair, fire and rescue trucks, park maintenance. Write for a copy to KOHLER CO., KOHLER, WIS.

Speedier Snow Removal

481 This folder from MONARCH ROAD MACHINERY CO., 1331 MICHIGAN ST., N. E., GRAND RAPIDS 3, MICH., points out how much easier, faster and more economical snow plowing operations can be when plows are controlled right from the cab by power hydraulic controls.

Nonclogging Draingrates

482 This brochure discusses "Dryway" draingates, which are 75% open to assure greater drainage yet are not subject to cracking. They're available in three basic designs, are economical and light in weight and will prevent flooding of underpasses or highways. Write IRVING SUBWAY GRATING CO., 5030 27TH ST., LONG ISLAND CITY 1, N. Y.

Parking Meter Information

483 There's a Park-O-Meter to meet your on- and off-street installation requirements. For these meters accept all coins through a single slot, are adjustable to any time limit, and come in either automatic or manually operated models. For literature, demonstration or trial installation, write MAGEE-HALE PARK-O-METER CO., OKLAHOMA CITY, OKLA.

Conical Refuse Burners

484 These prefabricated units provide low-cost refuse incineration, burn many types of waste, offer the advantage of multiple feeding methods, triple draft and efficiency of operation. Typical installations, models, sizes and specifications are given in a 4-page folder. Write WILCO MACHINE WORKS, INC., BOX 3897AC-1, MEMPHIS 14, TENN.

Refuse Collection Operations

485 Perusal of this 18-page illustrated booklet will acquaint you with the new Model 60 Hyd-Pak refuse collection body, the Hyd-Pak container system of refuse disposal, and details and results of a refuse collection demonstration in Lubbock, Texas using the Model GPT-42 Hyd-Pak Trailer. Write HOBBS TRAILERS, 609 N. MAIN, FORT WORTH, TEXAS.

(See page 68 for more Bulletins)

Reduce Air Conditioning Costs with New SUN-X Glass Tinting

Now you can economically reduce heat transmission through your windows to slash cooling costs . . . and eliminate eye-fatiguing glare.

New Sun-X Glass Tinting, a liquid plastic discovery by Du Pont, makers of "Better Things for Better Living . . . *Through Chemistry*," gives you positive, all-day sun control. Actual engineering studies show that typical heat reductions achieved through the use of Sun-X Glass Tinting will result in positive savings . . . as much as *17%* in *initial* air conditioning costs in new construction . . . as much as *30%* in *annual* air conditioning operating costs.

New Sun-X Glass Tinting is applied quickly and neatly to your existing windows by a unique miracle-flow process. It bonds tightly and is *guaranteed in writing* not to chip, crack or peel. No maintenance is required – you wash Sun-X tinted windows in the usual manner.

Available in your choice of 11 distinctive colors, Sun-X Glass Tinting gives you the distortion-free appearance, the trouble-free convenience of expensive factory-tinted glass *at a fraction of the cost.*

To see how you can get more for your air-conditioning dollars, send now for your free copy of "Solve Sun Problems with Sun-X."

manufactured by Du Pont

INTERNATIONAL DISTRIBUTORS

AMERICAN GLASS TINTING CORPORATION

AMERICAN GLASS TINTING CORP. · P. O. Box 6565
Department C, Houston 5, Texas

Please send free copy of "Solve Sun Problem with Sun-X"

NAME_____

COMPANY_____

ADDRESS_____

CITY_____ STATE_____

FREE catalogs

Write to address given or circle corresponding number on free post card on page 53.

Sludge Density Control

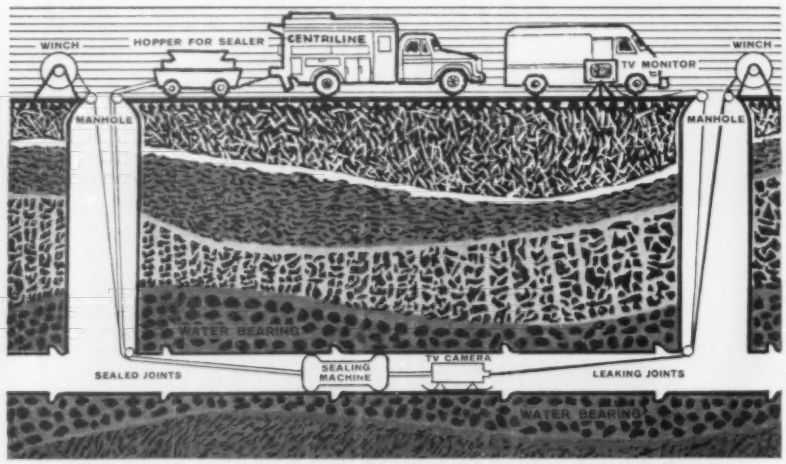
486 *Bulletin* SD-1 tells how the density of sludge in sewage treatment plants is automatically controlled by Omhart Density Control Systems, which employ a gamma radiation source and a cell which converts gamma radiation directly into electrical energy for density measurement and control. Write OMHART CORP., 2236 BOGAN ST., CINCINNATI 22, OHIO.

Caring for a Crawler Tractor

487 By writing to the ADVERTISING DEPT., J. I. CASE CO., RACINE, WIS., you can obtain a 14-page illustrated instruction manual whose aim is to encourage operator acceptance of instructions on care and maintenance of equipment. It's entitled "Henry's Crawler" and gets its point across in humorous fashion.

Ductile Iron Construction Castings

488 This 4-page bulletin succinctly presents the advantages of using construction castings made from Ductile Iron, which combines the processing advantages and high corrosion resistance of Gray Iron with the high strength, toughness, ductility and durability of steel. It's available from NEENAH FOUNDRY CO., NEENAH, WIS.



NEW! THE CENTRISEAL PROCESS ELIMINATES LEAKING JOINTS

Now joint leakage can effectively be stopped in small as well as large sanitary and storm drains. By remote control—constantly monitored by television which finds the leaks and checks the seal afterwards—special CENTRISEAL PROCESS equipment forces a fast-setting polymeric sealer into open joints **from the inside.** This forms a tough seal in the pipe joint as well as outside in the surrounding soil. You're thus assured a permanent bond, and leakage from either internal or external pressures is prevented. No excavations are necessary and the grouting process is remotely controlled from above ground. Savings are found in maintenance and pumping costs and capital expenditures are avoided.

INCIDENTALLY... If your problem is more than leaking joints, if you have deteriorated pipes, investigate the other Centriline services. The CENTRILINE PROCESS lines pipes with a cement mortar or acid-resistant epoxy mortar applied centrifugally. Because the pipes remain in place, there's no traffic interruption. Pipe life is increased, ground and pavement settlement due to infiltration eliminated. Write now for complete information on the CENTRISEAL PROCESS for leaking joints and the CENTRILINE PROCESS for lining pipe.

CENTRILINE CORPORATION

Subsidiary of Raymond International Inc.

140 CEDAR STREET, NEW YORK 6, N. Y. • WOrth 2-1429

Branch Offices in Principal Cities of the United States, Canada and Latin America

They Inhibit Litterbugs

489 Want a cleaner city? Try declaring war on litterbugs by placing Demcor metal litter baskets at bus stops, on street corners, at entrances to alleyways and public parks. They're durable, low cost, weatherproof and built to last—and they command attention and use. Write DESIGNERS METAL CORP., 662 HOFFMAN ST., HAMMOND, IND.

Concrete Construction Forms

490 If your municipal crews are at all concerned with making forms for concrete construction, they will want to obtain current information offered by GATES & SONS, INC., 80 S. GALAPAGO ST., DENVER 23, COLO., on products and techniques for every type of concrete forming, large or small.

For Low-Cost Outdoor Lighting

491 In *Bulletin* 25 you'll find full information on all models of the Hope metal pipe pole base, a rugged and durable malleable cast-iron support for threaded outdoor lighting uprights with its own chamber for splicing and grounding. For your copy, write HOPE ELECTRICAL PRODUCTS CO., 53 LONG AVE., HILLSIDE, N. J.

Full-Line Equipment Brochure

492 A new 24-page brochure shows the whole new M-F industrial equipment line. Action photos, cutaway drawings, operating information and specification material are included. For your copy, write MASSEY-FERGUSON INDUSTRIAL DIVISION, 1009 S. WEST ST., WICHITA 13, KANS.

New Compact Power Saw

493 WRIGHT SAW DIVISION, THOMAS INDUSTRIES INC., 207 E. BROADWAY, LOUISVILLE 2, KY., has introduced a new, all-purpose power blade saw, designed for a wide variety of sawing needs. It's called Model GS2016, is gas-operated, weighs 19 pounds, and has a 16-inch cutting blade and only six moving parts. Literature gives details.

All-Hydraulic Backhoe

494 HYDRAULIC MACHINERY CO., 1400 NATIONAL AVE., WAUKESHA, WIS., reports that the new model 250-OX backhoe offers the combined advantages of high flotation on 14-inch wide tires, superior off-highway maneuverability, and 50-mph job-to-job travel speeds. Literature gives details, specifications, special features.

It's Not Too Late

495 . . . to save your healthy elm trees, even if they are in an area already infected with dreaded Dutch elm disease. The DAVEY TREE EXPERT CO., KENT 16, OHIO, will be glad to supply prompt information concerning the control of Dutch elm disease and explain how you can protect your unaffected elms and other trees.

2 in 1 Sweeper

496 The Road Bird, a newly designed road sweeper introduced by LITTLE GIANT PRODUCTS, INC., 1550 N. E. ADAMS ST., PEORIA, ILL., can be used effectively as a tow-type sweeper or as a front-mounted sweeper. Brush has easy adjustment for wear, angles 30° right or left and can be reversed. Write for descriptive bulletin.

Why Cities Use Transportation Tokens

497 The advantages of using metal fare tokens for transit in multifare and fractional fare systems, and the facts and figures on municipalities using them, can be obtained from MEYER & WENTHE, INC., TRANSPORTATION DIVISION, 30 S. JEFFERSON ST., CHICAGO 6, ILL.

CATALOGS for Improved Municipal Services

Write to address given or circle corresponding number on free post card on page 53.

Tractors, Loaders, Backhoes

498 Up to date on the Ford line of tractors and equipment? If not, write INDUSTRIAL TRACTOR AND EQUIPMENT DEPT., FORD MOTOR CO., BIRMINGHAM, MICH., for literature and specifications on the 1801 Industrial package, the Fordson power major package, and the Workmaster or Powermaster package.

Chain Link Fence—"How to Choose It. How to Use It"

499 This 16-page catalog will answer your questions on the uses of Cyclone chain link fence and will help you determine what you want your fence to do and what type is best suited for your particular job. Available from CYCLONE FENCE, AMERICAN STEEL & WIRE, DEPT. 0365, 614 SUPERIOR AVE., N. W. CLEVELAND 13, OHIO.

Masonry Cutting Products

500 CLIPPER MFG. CO., 2800 WARWICK, KANSAS CITY 8, MO., announces availability of (1) a new brochure covering products used in cutting of masonry materials; (2) information on the sawing and sealing of concrete and asphaltic materials, and (3) literature on Diamond core bits and drills for drilling holes in concrete, masonry, stone and refractories.

Cleans Water Meters in Record Time

501 Are you familiar with the VIB Liquid Honing method of cleaning water meters? Did you know it will completely clean a meter and all parts in just five minutes? That it uses no acids, solvents or scrapers, which could easily cause meter damage? For the whole story, write VAPOR BLAST MFG. CO., 3037 W. ATKINSON AVE., MILWAUKEE 9, WIS.

Truck Crane, Catch Basin Cleaner

502 In this bulletin STEDT HYDRAULIC CRANE CO., P.O. BOX 188, ASHLAND, MASS., gives facts, features and figures on its newly improved, fully hydraulic truck-mounted crane, the HIAB Model 193 SE, which simplifies materials handling. Catch basin cleaning attachments for the crane are discussed and specifications given.

Water Control Equipment

503 Axial flow pumps; butterfly and spherical-type waterworks shut-off valves, throttling service or flow control valves; cone, stream and jet hollow-type valves; automatic dashpot-controlled air valves, surge suppressors—are all the subject of catalog literature available from PELTON DIVISION (B-L-H), 2929 NINETEENTH ST., SAN FRANCISCO 10, CALIF.

Tackles Tough Job With Assurance

504 Time-saving, care-free track lube, super pry-out action, highest dumping clearance, fastest reverse—these are some of the features and advantages of the powerful 72-hp Allis-Chalmers HD 6G 1½-yard tractor shovel. The rest are explained in literature, available from ALLIS-CHALMERS, CONSTRUCTION MACHINERY DIV., MILWAUKEE 1, WIS.

Utility Tractors

505 These tractors (D-14 and D-17) shift wheels out for extra stability, pull them in for close work. They're members of the D-Series of utility tractors manufactured by ALLIS-CHALMERS MFG. CO., UTILITY TRACTORS & EQUIPMENT, MILWAUKEE 1, WIS. Catalog literature gives pertinent information and describes companion equipment.

Heavy-Duty Brush Killer

506 Nonvolatile Fence Fire delivers complete and quick kill to brush and unwanted vegetation and now contains large and wild animal repellent. Literature from THE GLEDHILL MACHINERY CO., GALION, OHIO, gives full facts and also tells about an improved roadside sprayer.

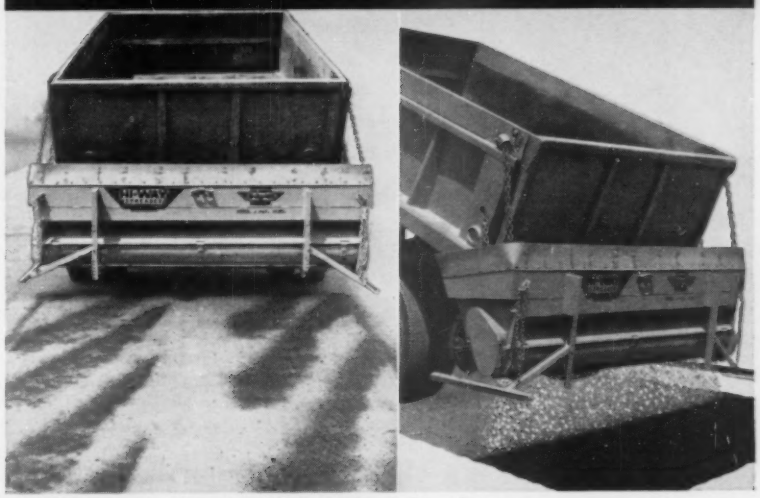
Steel Foundation Products

507 Armco steel pipe piling can be obtained in a wide selection of lengths, diameters, wall thickness and weight. Its many advantages and applications are presented, along with other foundation products, in 16-page catalog of Armco Foundation Products. Write ARMCO DRAINAGE & METAL PRODUCTS, INC., DEPT. A, 5670 CURTIS ST., MIDDLETOWN, OHIO.

1961 Line of Motorcycles

508 Advanced features, new styling and colors, and a completely new power class are said to distinguish the 1961 line of motorcycles and motor scooters manufactured by HARLEY-DAVIDSON MOTOR CO., MILWAUKEE, WIS. Descriptive literature is available on request.

HI-WAY Model J Traction-Type Tailgate Spreader



whether for Ice Control or Seal Coating...

HI-WAY Model J Tailgate Spreader Is Geared To Surface of The Road!

- For ice control, a spiral feed roller lays materials in heavier ridges that melt ice more effectively. Whereas thin blanket patterns can blow away. Pattern helps to identify curves, hills and stops . . . cautions drivers.
- For seal coating, a grooved roller handles all granular materials without free flowing. Depth of coverage is controlled by a feedgate. The dump body operates independently since the unit is hinged directly to the truck frame.

Other Model J Features

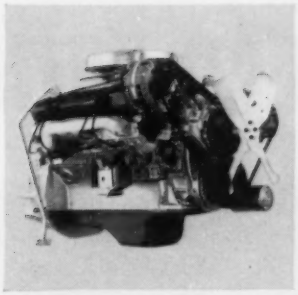
- *From road-travel position to spreading in 5 minutes. Operates at speeds up to 30 M.P.H.*
- *Spring loaded spreader hitch for fast, one-man hookup or disconnect*
- *All bearings sealed for life*
- *Machine-cut steel sprockets and heavy-duty roller chain*
- *Adjustable width up to 9 feet*

Write for the latest literature and complete specfications.

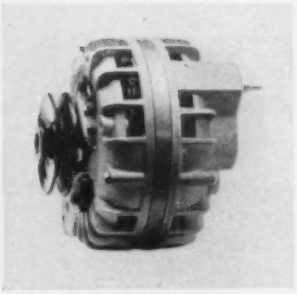
HIGHWAY EQUIPMENT COMPANY

638B "D" Ave. N. W. • Cedar Rapids, Iowa

HI-WAY S-P-R-E-A-D-E-R-S SALES & SERVICE



GOLDEN COMMANDO V-8 ENGINE. Develops 305 hp. at 4800 rpm. 361 cu.-in.-displacement. Boasts 9 to 1 compression ratio.



NEW 40-AMP HEAVY-DUTY ALTERNATOR delivers current even at idle, prolongs life of battery. Included on every Special.

NEW HIGH-PERFORMANCE BRAKE. Metal insert dissipates heat, and provides high stopping capability with minimum of fade.

America's finest line-up of Solid Performers:

ANNOUNCING THE NEW '61 PLYMOUTH POLICE SPECIALS

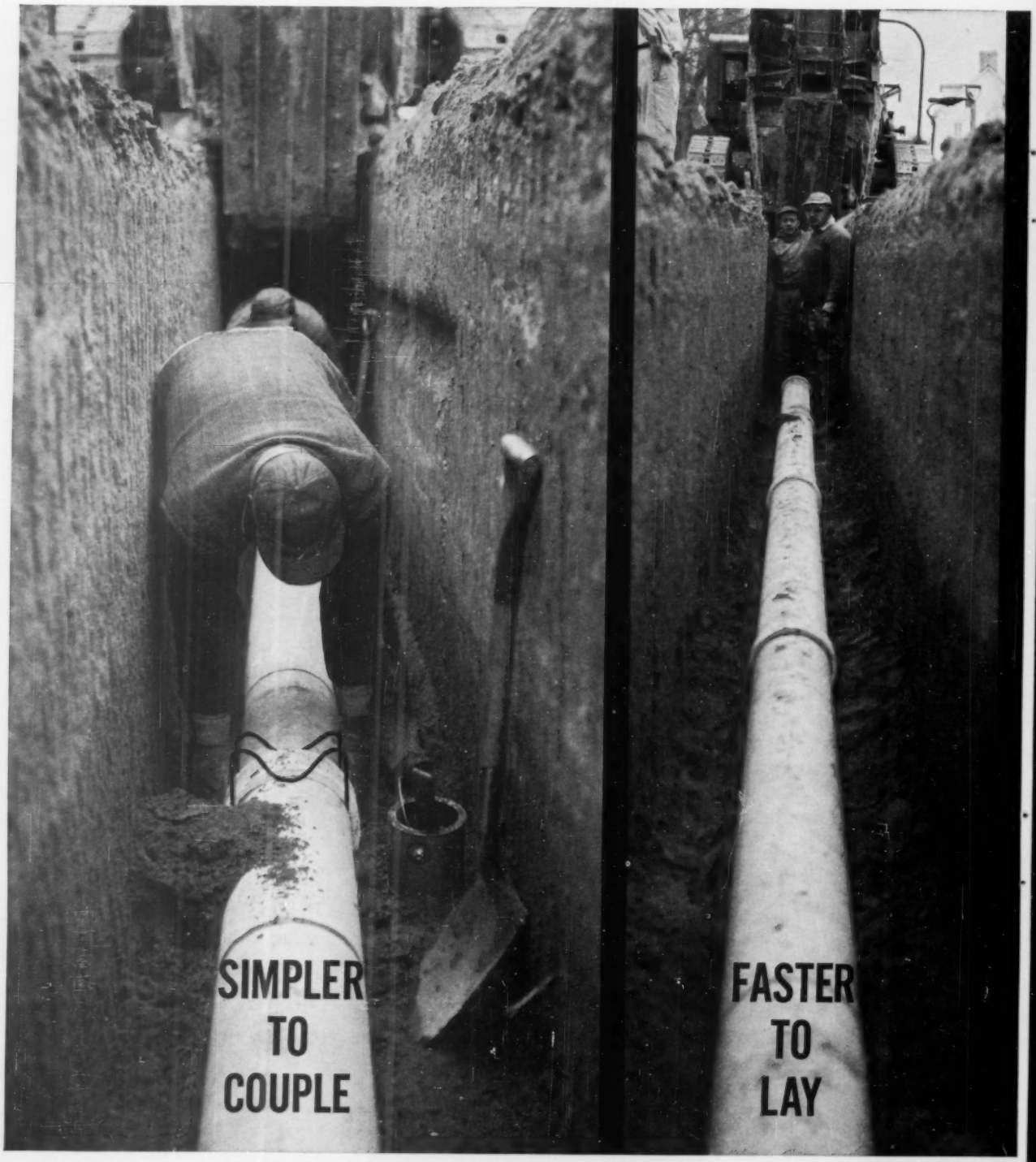
These Solid Performers are topped by the Pursuit Special, Plymouth's candidate for America's No. 1 Police Car. It is specifically designed for duty where maximum performance is a "must." Just a toe touch summons its Golden Commando V-8 into lightning-like action. And for rugged stopping power, Plymouth now announces a new high-performance brake, available at extra cost. As with all Solid Plymouths, the Pursuit Special corners virtually level . . . stops, starts without the usual dive or "squat," thanks to famous Torsion-Aire Ride. One-piece Unibody construction, plus heavy-duty components throughout, make this a rugged performer.

Other models in Plymouth's Police line-up: *Patroller Special 8* with standard Fury V-800 engine—designed for all-around Police work. *Patroller 6* with 30-D Economy Six engine—designed for round-the-clock city patrol. *Emergency Police Wagon* has ten-foot-long rear deck, can carry two full-size cots plus emergency equipment. See your Plymouth dealer for new 12-page catalog.

61 PLYMOUTH

SOLID PERFORMER

"YOU'RE MONEY AHEAD WITH K·M BEST IN ASBESTOS



ASBESTOS-CEMENT SEWER PIPE!"

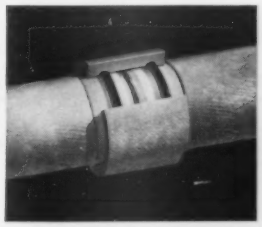
says prominent New Jersey contractor

. . . after laying more than 6 miles of "K&M" asbestos-cement sewer pipe

With the completion of the new sewer installation in New Jersey's thriving town of Marlton, Clyde Fear of Gray & Fear, contractors, had lots to say about "K&M" Asbestos-Cement Sewer Pipe. Here's what he told us. "You're money ahead with "K&M" Asbestos-Cement Sewer Pipe. Our men like the simple "K&M" couplings that slide in fast without any heavy machinery, and, believe us, that's one place where we save time and money. These simple coupling joints go miles faster. The pipe is easy to handle; there's less breakage on the job or in the storage yard. No lost time because of bad weather, either, because we can lay and couple this pipe in muddy trenches."

What Marlton, New Jersey, gained with "K&M" Asbestos-Cement Sewer Pipe, you can gain for your community, too. The pipe's smooth bore remains clean. This permits flatter grades . . . means fewer lift stations and lower pumping costs. It all adds up to less tax money for sewer installation and maintenance for your community.

Write today for more information on "K&M" Asbestos-Cement Sewer Pipe. Write to: *Keasbey & Mattison Company, Ambler, Pa., Dept. P-5100.*



FLUID-TITE COUPLING—an exclusive feature of "K&M" Asbestos-Cement Sewer Pipe. You simply lubricate the rings and slide in the pipe without heavy tools. The coupling is permanently tight, eliminates infiltration, and keeps out roots.

"K&M" Asbestos-Cement Sewer Pipe installation, Marlton, N. J.; Engineers: Sherman, Taylor & Sleeper, Merchantville, N. J.; Contractor: Gray & Fear, Woodbury, New Jersey.

Keasbey & Mattison at Ambler

Pipe plants at Ambler, Pa.—St. Louis, Mo.—Santa Clara, Cal.

ASBESTOS-CEMENT SEWER & PRESSURE PIPE

Now New York specifies basic lead silico chromate in all coats of rust-inhibitive paint system

You can be *sure* that before any state changes a basic materials specification, evidence must be substantiated indicating superior performance.

Adoption by the New York State Department of Public Works of a rust-inhibitive paint system containing basic lead silico chromate pigment in all coats, is a case in point. The initial evidence for this decision was established by more than ten years of exposure testing by National Lead at its Sayville, Long Island, Test Station.

It was found that even without a finish coat to protect them, primers containing *M50*® basic lead silico chromate pigment endured ten years. And the *M50* pigment, unlike other rust-inhibitors, could be used in intermediate and finish coats as well as in primers.

Then the state obtained its own evidence by painting several bridges with basic lead silico chromate paints. One such job was the renovation of the Albany, New York, bridge shown above. It called for both shop-coat priming of new steel and spot priming of the old. And the intermediate and finish coats were properly applied in the Fall.

Pass field test with flying colors

New York State Engineers were more than satisfied . . . not only with the performance but also with the working properties, tint retention, and color uniformity of the basic lead silico chromate paints. On November 28, 1958, the Division of Construction of the New York State Department of Public Works issued new "Paint and Painting" specifications calling for basic lead silico chromate pigment *in all coats* of the typical rust-inhibitive paint system for highway structures. Today, state after state is following suit.

For information on basic lead silico chromate paints, consult your regular paint suppliers. For technical details on National Lead's basic lead silico chromate, *M50* pigment, contact National Lead Company.

M50® an **oncor**® *Pigment... A Development of* **National Lead Company**

General Offices: 111 Broadway, New York 6, N.Y.

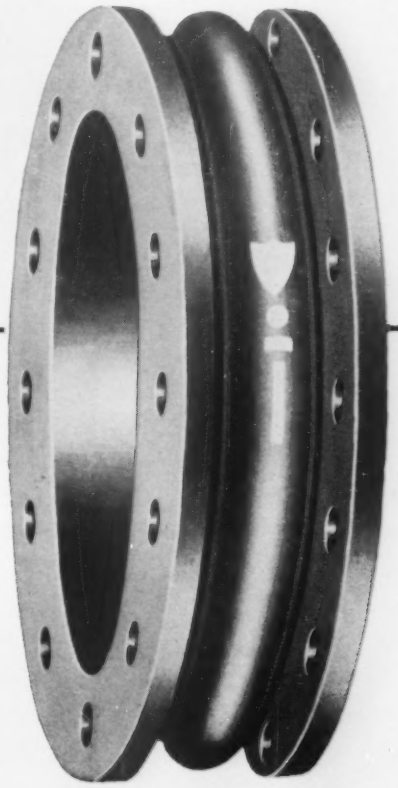
US RUBBER EXPANSION JOINTS

THEY STAY FLEXIBLE
when handling the most severe chemicals

"U.S." Expansion Joints of
butyl rubber construction are recommended
for handling certain chemicals.

Typical of these are:

ANILINE-R.T.
DIETHYL SEBACATE-R.T.
HYDROCHLORIC ACID (37%) UP TO 122° F
SODIUM HYDROXIDE (20-50%) UP TO 158° F
SODIUM HYPOCHLORITE (20%) UP TO 158° F
SULFURIC ACID (50%) AT R.T.



"U.S." Expansion Joints remain completely flexible at all times. Joints made of neoprene or natural rubber stiffen up, crack and fail when handling the above chemicals.

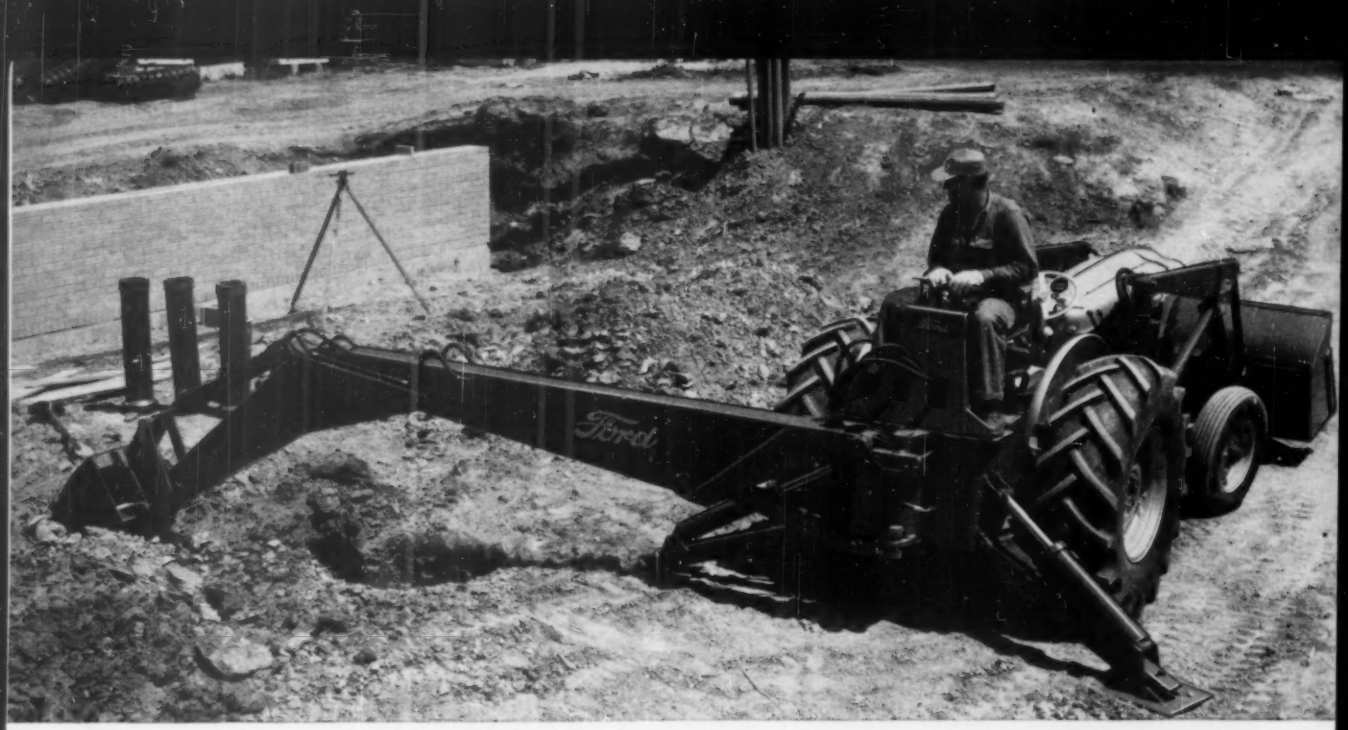
For the most severe service, specify "U.S." Expansion Joints lined with Teflon. These "U. S." Joints are ideal for handling most chemicals and solvents.

"U.S." Expansion Joints are in use in every kind of industry. Some of these joints have been on the job since 1924, the year "U.S." invented them! Long-lived, they *prolong the life* of equipment in pressure and vacuum systems.

• • •

When you think of rubber, think of your "U.S." Distributor. He's your best on-the-spot source of technical aid, quick delivery, and quality industrial rubber products.

US RUBBER **Mechanical Goods Division**
United States Rubber
WORLD'S LARGEST MANUFACTURER OF INDUSTRIAL RUBBER PRODUCTS
Rockefeller Center, New York 20, N.Y. In Canada: Dominion Rubber Company, Ltd.



Unmatched reach in each digging class with Ford 10′, 12′, 14′ backhoes.

Excellent flush digging close to walls, footings.

Pinpoint bucket control for speed, accuracy.

Strong swing, even on uphill slopes.

Easy pipe handling, a bonus for line work.

NAME YOUR NEED!
FORD BACKHOES EXCEL AT ANY JOB!

1801 Industrial Package

A production champ from any angle. The beefy industrial tractor is built to "take it," has plenty of power. Ford's schedule-beating 12 ft. and 14 ft. backhoes team up with Ford's big 2,500 lb. capacity Super-Duty loader for fore-and-aft productivity that tops any other rig in this power class.

Fordson Power Major Package

Big, rugged, economical diesel power for Ford's bigger backhoes and Super-Duty loader. Fordson tractors have long been noted all over the world for simple, dependable design and ever-scrimpin' fuel economy. Now, Ford-matched industrial equipment gives Fordson more dig-and-load capacity than ever before.

Workmaster or Powermaster Package

Ford's versatile 601 and 801 all purpose tractors provide low cost power for 10 ft. or 12 ft. backhoes and Extra Heavy Duty loader. All Ford tractors including industrial models are available with choice of gasoline or diesel engines, choice of work-saving transmissions and many other options. Your Ford dealer can advise you on the best money-saving, money-making tractor-loader-backhoe combination for *your* job. Stop in and see him soon, or write Industrial Tractor and Equipment Department, Ford Motor Company, Birmingham, Michigan.

Ford Motor Company

FORD

TRACTORS AND EQUIPMENT FOR 101 INDUSTRIAL JOBS

Unmatched undercutting, true of every model.

Tight quarters pose no problem with Ford.

Super lift capacity adds to odd-job versatility.

The homeowners campaigned for concrete!

In Indian Village, they paved 110 blocks of streets with modern concrete!

The Indian Village subdivision of Salina, Kansas, is a 5-year-old neighborhood of modest homes . . . and progressive homeowners!

Worn-out, potholed, all-but-impassable streets threatened to turn the area into a suburban slum. Neighbors got together to do something about it. They found they could have modern concrete streets, pay for them over a period of 20 years under the provisions of a new Kansas law.

Then they proved the durability of concrete to the city council, showed the monthly assessment against homeowners to be much less for concrete than for asphalt on a 20-year basis.

They got their concrete streets—110 blocks of them in the biggest street paving program ever in Kansas. And everywhere houses showed dramatic evidence of the village's new lease on life! Paint-up . . . clean-up . . . fix-up . . . villagers are taking added interest in their homes, show more pride in their attractive neighborhood.

And when the streets are paid for, they'll still be "new"—flat and smooth-riding as ever. Concrete is the one pavement that you can expect to outlast the 20-year assessment.

Thrifty concrete offers true economy for taxpayers, both today and in the future. If *you* are planning a street paving program, write for free literature—technical and nontechnical. (U.S. and Canada only.)

PORTLAND CEMENT ASSOCIATION

Dept. 10-4, 33 West Grand Avenue, Chicago 10, Illinois

A national organization to improve and extend the uses of concrete

MODERN Concrete

cuts wear and noise at the water level

It's standard on all Badger Disc meters. Dovetail thrust roller insert fits vertically into the thrust roller slot to form a smooth track on which the roller rides countless times — quietly without wear. With the slot 77% shorter, original strength is retained and possible distortion in this area is eliminated.

Accurate registration is constant because the nutating disc never shifts position. After many years of service an inexpensive insert can be replaced if necessary (instead of a possible chamber replacement).

The dovetail thrust roller insert is just one of many refinements to emerge from Badger's concentration on *meter* research and development. For further details, see your Badger representative. Ask him, too, about the new Read-o-Matic outdoor meter-register. Proof that answers for better water metering come first from Badger.

BADGER'S BIG PARADE OF PRODUCTS FOR BETTER WATER METERING

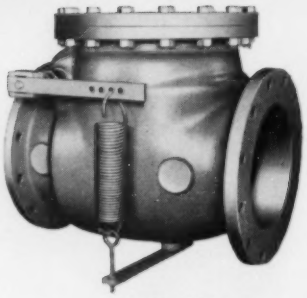
Badger Water Meters

BADGER METER MFG. CO. • 4545 W. Brown Deer Rd., Milwaukee 23, Wisconsin • *Offices in Principal Cities*

EDDY New Improved Products Meet Modern Needs

EDDY Fire Hydrant

- **Improved, streamlined, modernized**
- **Optional break-flange**
- **Large diameter barrel**
- **New self-sealing main valve packing**
- **Requires no lubrication**
- **Opens *with* pressure**
- **Closes *against* pressure**
- **Underwriters' listed**
- **Standardized, interchangeable parts**

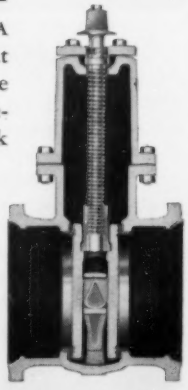


EDDY Check Valves

Completely new designs of horizontal swing check valves are available in sizes from 4 through 12 inches. They operate dependably in either vertical or horizontal positions and incorporate construction features which provide unusual flexibility of operation. These valves may be converted in the field from plain to single- or double-lever operation to meet changing requirements. Other check valves up to 24 inches.

EDDY Gate Valves

In addition to the regular line of EDDY Taper Seat AWWA gate valves, EDDY now offers a newly designed parallel seat AWWA gate valve in sizes through 12 inches. This valve has been specifically engineered to provide long, trouble-free service. Working parts are designed with heavy, thick section and large seating surfaces for dependable operation and improved wearing qualities. The valve has two-point, free-floating wedging for minimum friction and maximum operating ease. Other AWWA gate valves are available through 48 inches.



Whatever your waterworks requirements, it will pay you to have full information on the complete EDDY *line of valves and hydrants.*

EDDY VALVE COMPANY
A Subsidiary of James B. Clow & Sons, Inc.

WATERFORD NEW YORK

INCREASE THE LIFE AND EFFICIENCY OF YOUR WATER METERS...

with

Sanfax MC-253

Specialized Sanfax Chemical product descales and brightens metallic water meters with amazing results.

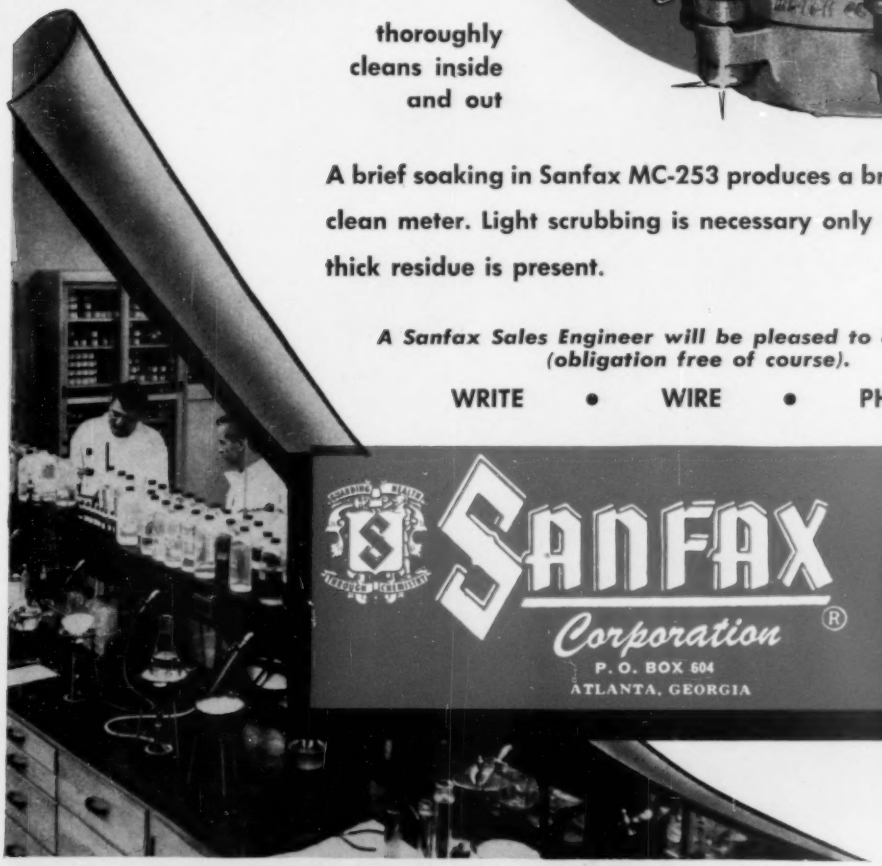
- **Removes organic residues**

  IRON AND COPPER OXIDES

  HARD WATER SCALE

- **Will not attack metal or meter parts**

thoroughly cleans inside and out



A brief soaking in Sanfax MC-253 produces a bright, thoroughly clean meter. Light scrubbing is necessary only when extremely thick residue is present.

A Sanfax Sales Engineer will be pleased to demonstrate (obligation free of course).

WRITE • WIRE • PHONE

SANFAX Corporation®

P. O. BOX 604

ATLANTA, GEORGIA

ATLANTA
CHICAGO
SAN FRANCISCO
TORONTO, CANADA

ALLIS-CHALMERS
6
G
HD
6
G

WORK AWAY...
WORRY-FREE

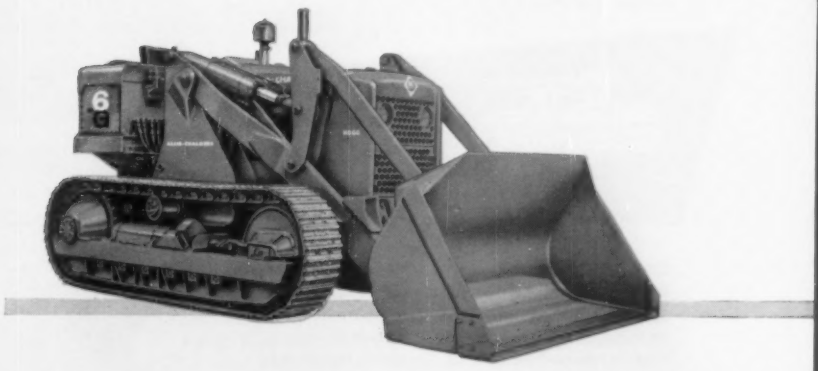
...NO ROLLER GREASING EVER!

The 72-hp Allis-Chalmers HD-6G is the only 1½-yd tractor shovel with permanently lubricated tapered roller bearing truck wheels, idlers, support rollers—gives you certified protection . . . saves greasing time, materials and money.

The PERMA-SAFE truck wheels, idlers and support rollers in the HD-6G are lubricated at the factory . . . need no further greasing regardless of conditions. PERMA-SAFE design with Positive Seals and tapered roller bearings keep lubricants in . . . dirt and moisture out . . . *for life.*

In addition to timesaving, care-free track lube, the HD-6G also features super pry-out action, highest dumping clearance, fastest reverse and many more big tractor shovel advantages.

Your Allis-Chalmers construction machinery dealer will be glad to put an HD-6G through its paces on your toughest job. Allis-Chalmers, Construction Machinery Division, Milwaukee 1, Wisconsin.



move ahead with

ALLIS-CHALMERS

...power for a growing world

REPRODUCE YOUR OFFICIAL SEAL IN PERMANENT, COLORFUL PORCELAIN ENAMEL

Yes—reproduce your Official State, County, or City Seal for all of your rolling equipment in ageless Porcelain Enamel.

The brilliant colors of *your* official seal remain *unchanged, unaffected* by the bite of constant steam cleaning—*untouched* by the harshest of climatic conditions! Easily removed and transferred from vehicle to vehicle. The steel plate is flexible enough to conform to the normal contour of any surface.

Porcelain Enamel signs positively outlast any other type of vehicle identification—and their 10-year guarantee of paint-free, maintenance-free service assures you of the utmost in sign economy!

All CAMEO official seals come pre-punched with nickel plated brass eyelets for simple, easy installation. Stainless steel sheet metal screws with neoprene washers supplied with each sign.

A complete art department to serve your requirements.

PORCELAIN ENAMEL OFFICIAL SEALS CAN BE ORDERED IN ANY DESIGN, ANY SIZE, ANY SHAPE.

Inquire today from

CAMEO Genuine PORCELAIN ON METAL

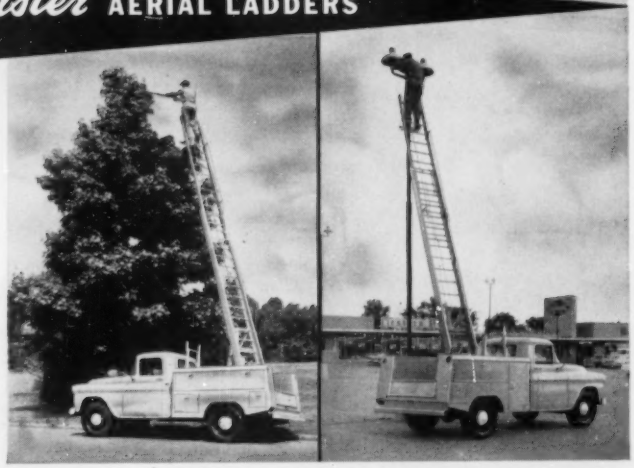
CALIFORNIA METAL ENAMELING COMPANY

6901 East Slauson Avenue Los Angeles 22, California RAymond 3-8351

SAFE • EFFICIENT • ECONOMICAL

Two hydraulically-elevated models in 26′ and 30′ sizes. Model ML elevates by a manual pump; Model LH has an electric pump driven by truck battery. Both ladders manually extend and rotate 360 degrees.

POWERS *Service-Master*® AERIAL LADDERS



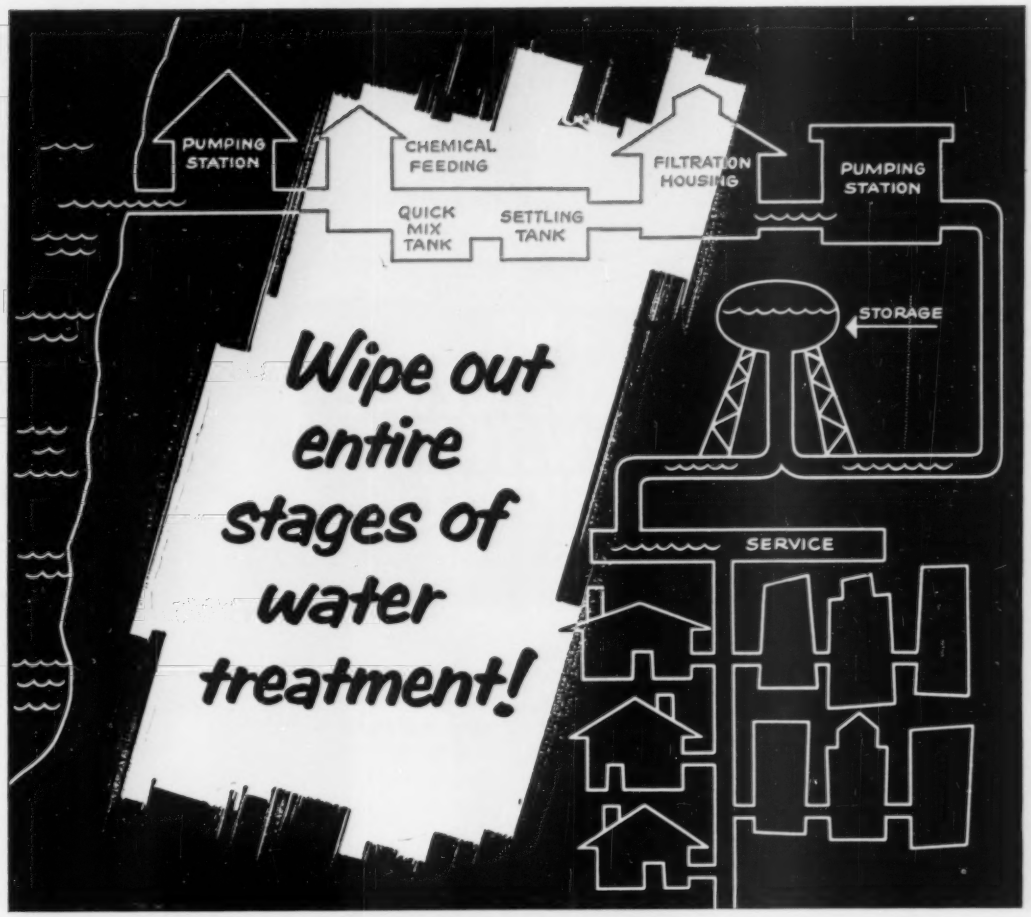
Exclusive construction features include lower rails of formed steel, upper rails of durable spruce and a simple hydraulic system*... assuring many years of dependable, maintenance-free service. Optional truss rod insulators guard against shock.

**Nothing can go wrong that cannot be repaired locally.*

WRITE FOR LATEST BULLETIN AND NAME OF NEAREST DEALER. IMMEDIATE DELIVERY IN ALL STATES.

McCABE-POWERS BODY COMPANY

5900 NO. BROADWAY • ST. LOUIS 15, MO.



A complete Celite diatomite filtration system can eliminate the costs of conventional pre-treatment facilities

Now you can do something about skyrocketing per capita water consumption costs—as are dozens of municipalities every year. And get clearer, sparkling-bright water in the bargain!

Install one of today's small compact diatomite filtration plants, using Celite* filter aids. In many cases, raw water can be filtered directly, eliminating several of the costly conventional pretreatment stages—flocculation, quick-mixing tanks, and settling tanks, for example.

Result†: Filtration plants requiring only ¼ the space of sand plants of equal capacity. Capital costs cut almost in half—savings of up to 45%.

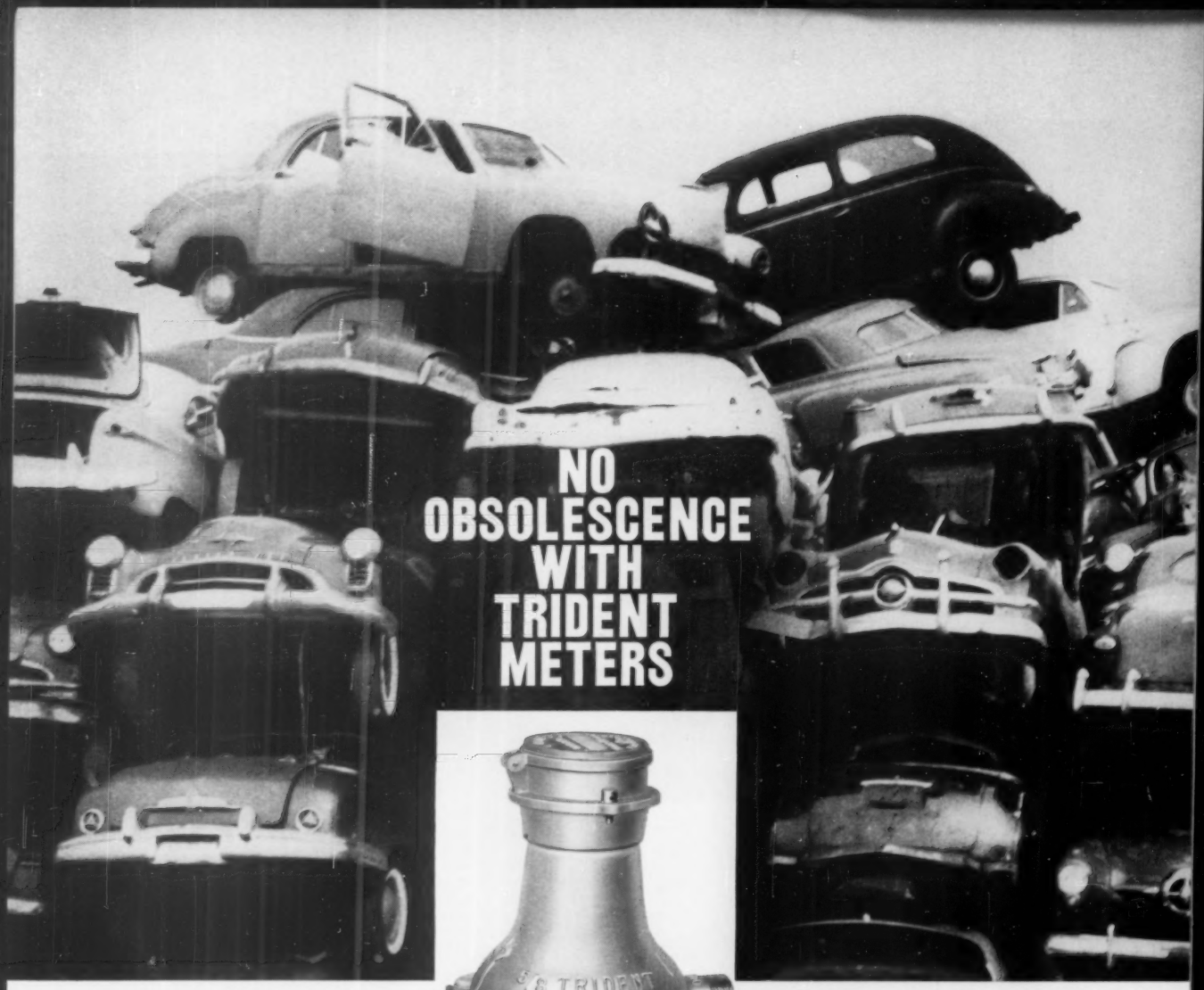
Here's why. Celite diatomite filters better than any other medium. Every cubic inch of the skeletal diatomite particles contains millions of microscopic filter pores. These are so minute they remove all suspended solids, including amoebae and algae, without flocculation.

Mined by Johns-Manville from the world's purest commercially available diatomite deposit, Celite is carefully processed for uniformity. You have a wide choice of grades for best balance of clarity and flow rate. For further information, call your nearby J-M Celite engineer. Write direct for free technical reprints and illustrated brochure. Johns-Manville, Box 14, New York 16, N. Y. In Canada, Port Credit, Ontario.

* Celite is Johns-Manville's registered trade mark for its diatomaceous silica products.

† See *Comparison Studies of Diatomite and Sand Filtration* by G. R. Bell, Journal American Water Works Association, September, 1956, or write for free reprint.

JOHNS-MANVILLE JM



NO OBSOLESCENCE WITH TRIDENT METERS

Being modern today is the continuous process of going out-of-date tomorrow. Look at the record of Trident design improvements and you'll find this statement is just as true of water meters as it is of automobiles . . . *with one exception.* ■ With Trident meters, your department is probably the only service in your community equipped with *built-in modernization* . . . a process which eliminates the high cost of obsolescence. ■ Here's how it works. ■ Every time you replace work-worn parts in a Trident disc meter, you automatically use *modern* parts identical to those in the *latest* model . . . parts embodying every thoroughly tested advancement known to the science of metering. Not only is repairing easy and economical, but also you actually *modernize* your Tridents as you go. ■ Take a look at the past 30 years. Think how much you're saving *this* year on Tridents installed back in 1930 . . . or even 30 years before that. ■ *All of the many design improvements now on our drawing boards continue this long standing Neptune policy.* It's your assurance that the Tridents you buy today will not be obsolete tomorrow. For personal proof, check your own records.

neptune
TRIDENT WATER METERS

NEPTUNE METER COMPANY
LIQUID METER DIVISION

47-25 34th St., Long Island City 1, N. Y./Neptune Meters, Ltd., 1430 Lakeshore Rd., Toronto 14, Ont./Offices in Principal Cities

OCTOBER 1960

The American City

Large treatment plants such as this Toledo installation benefit the smaller cities served through lower costs per unit of sewage treated.

Metropolitan Sewerage Pacts

Part I — Inter-city Contracts

By **WILLIAM S. FOSTER**, Editor, The American City

Philadelphia, host this month to the nation's fraternity of sanitary engineers known as the Water Pollution Control Federation, is a clear example of how sewerage service has led the way in inter-municipal cooperation.

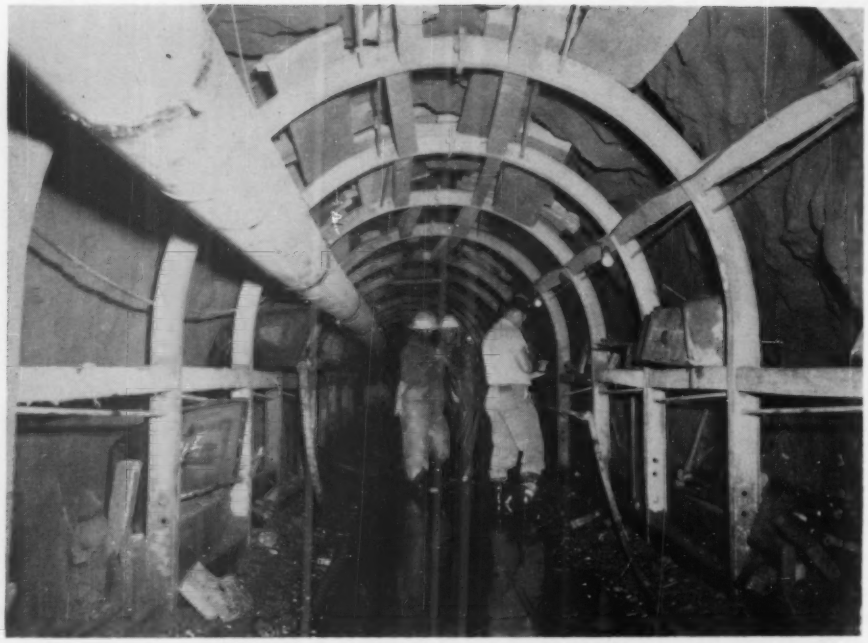
Philadelphia has an area of approximately 130 square miles, but the basic design of the sewage collection and purification system includes 77 square miles outside the city.

When planning its sewerage system, the city built its interceptors large enough to receive sewage from outlying municipalities long before any formal agreements were negotiated. The designers anticipated that these communities would eventually become part of the central city. This, of course, has not happened and does not seem imminent at this time.

At present, practically every municipality surrounding Philadelphia has entered into an agreement to let the central city receive and treat its sewage. Many of these suburbs take sewage from still other areas which eventually drain into Philadelphia. The agreement specifies that the outlying agency deliver the sewage to the city at its city limits. Each contributing community pays a *pro rata* share of the capital cost of all the facilities reserved for use under the contract and a *pro rata* share of all operating costs involved.

Generally, this means that Philadelphia furnishes this service at cost. The suburban municipalities benefit because unit costs are usually smaller in the large plants. The city benefits because the sewage is transmitted and treated at a point on the river downstream from its water intakes.

The contract agreement has many advantages. The chief apparently is that it does not create a new governmental agency. Students of local government are almost unani-



Philadelphia has built its interceptors large enough to receive sewage from outlying municipalities long before any formal agreements were negotiated.

mous in their opinion that the number of governmental agencies should be reduced instead of increased, if urban areas are to thrive. Moreover, use of existing forms of government means that responsibility is well defined and that the public has close access to the agency providing the service. Separate autonomous authorities or districts are generally divorced from such contact to "protect them from political interference."

Other Agreements

Toledo, Ohio, is another example of those using the contract method. It receives sewage from several adjoining communities and unincorporated areas. Where city water is used and metered, a surcharge is made of 40% on a volume basis over charges that city users pay. In addition, some pay a negotiated drainage charge on the basis of area drained.

In the same state, Cleveland has contracts to provide sewerage service for 30 suburban communities whose aggregate contribution is about 25% of the total flow received at the three Cleveland purification plants. The city makes a base suburban sewerage charge of $1.12 per 1,000 cubic feet of water converted to sewage. This charge is currently being contested in the courts.

Cincinnati has contracts with several municipalities and private subdivisions. The city charges at the same rate for sewer service regardless of whether the contributor is inside or outside the city limits.

Wilmington, Del., has an agreement with New Castle County to provide sewerage service. This contract states that the county must pump the sewage to the nearest suitable sewer in the city. The city charges the county quarterly on a sliding scale based on volume only. The rates for the county are fixed by agreement to be the same as those charged to city property owners. This currently is 65% of the water bill. These rates can be changed by the Board of Directors of the Street and Sewer Department in order to obtain sufficient revenue to retire bonds, pay interest on bonds, and cover all operating costs of the interceptor sewers, pumping stations, and treatment plant.

Atlanta, Ga., also receives sewage from its suburban area by contract. However, in this case, Atlanta's contract is with Fulton County which, in turn, arranges similar agreements with its cities. Atlanta also has a contract with DeKalb County covering sewage from large unincorporated areas and from seven municipalities.

Since the two counties had contributed to the cost of the treatment plants and outfall sewers, these contracts cover only operating costs. The contract with Fulton County runs for 30 years, subject to renegotiation every five years. The county pays a percentage of the cost based on the strength of the sewage in terms of equivalent population. The contract with DeKalb County is for five years at a time. However, instead of paying a percent of the cost, the county agrees to a flat sum which increases each year by approximately 5%.

Atlanta also has a separate contract with Forest Park to receive its sewage. Since neither Clayton County nor Forest Park had participated in the cost of the sewer system and were not in a position to make a lump-sum payment for capital costs, the city agreed to pay 6 cents per 1,000 gallons to reimburse Atlanta for capital and operating costs. A Parshall flume and flow meter in the city's outfall line measures the flow. Atlanta bills the city monthly.

Clayton County is currently negotiating with Atlanta to permit various unincorporated areas to connect to the city sewer system. In turn, a small isolated area of Atlanta will connect to a sewer system recently constructed by Clayton County.

Although Fulton and DeKalb Counties have participated from time to time in the cost of outfall sewers, and enlargement and modernization of the treatment plants, Atlanta still owns and controls the system. The city, however, is not responsible for constructing any sewers which will not serve the

In most cases agreements provide that the cost of installations such as this large lift station is prorated among the municipalities using the facilities.

city itself. The counties and other cities must build those sewers which are for their own use.

This agreement did not develop easily. Early negotiations were long and drawn out, appearing to promise no more result than the recent Paris summit conference. Threats to cut off the sewer service almost resulted in a second battle of Atlanta. However, in later years engineers representing the various governments have worked out renegotiations on a practical and scientific basis and these have been promptly approved by the governing bodies.

The Detroit Department of Water Supply provides area-wide service for both water and sewage on a contract basis. A total of 39 separate suburban areas in three counties now use the Detroit system for sewage disposal and five more are negotiating contracts. These communities, either through their County Department of Public Works or a District Authority, construct their own trunk sewer system and join it to the Detroit system at the city limits.

Two Contracts

Two contracts are drawn up in each case, one with the Detroit Department of Public Works which controls the apportionment of capacities in the Detroit Sewerage System and the other with the Detroit Department of Water Supply, which operates the sewage treatment plant, finances the interceptors, and collects the revenue for treatment service. The charges are based upon the water usage, with the suburban areas paying slightly higher rates.

Falls Church, Va., has an unusual contractual arrangement. Part of its sewer system drains to Fairfax County and part to Arlington County for purification under contract. The city provides no treatment facilities itself.

Occasionally two cities of comparable size will enter into a contract to build a single sewage treatment plant without creating a separate agency. In California, San Bruno and South San Francisco are examples. Originally San Bruno, the smaller of the two, paid 40% of the operating costs and contributed roughly 40% of the flow, none of which was industrial waste. As flow quantities varied, the two municipalities have agreed to revise the ratio of cost sharing accordingly.

Currently, San Bruno pays 30% of the sewage purification costs, and South San Francisco pays the balance. Of this, 47% is allocated to domestic sewage and 23% to industrial wastes. The two cities also make a special accounting for sludge disposal. South San Francisco pays 75%, allocated half to domestic and half to industrial wastes, and San Bruno pays 25%.

The two cities allocated costs of construction on a negotiated basis of flow and strength of the sewage. San Bruno paid 19% of the cost of the site.

In Minnesota, the two small municipalities of Lindstrom and Chisago, about three miles apart, also established a working arrangement that permitted building a sewage purification plant. Lindstrom built the plant but Chisago paid half the cost. A two-city commission governs the plant operation. Two members are appointed by one city; two by the other; and the fifth is a person mutually acceptable to both communities. The original board consisted of the mayor and city clerk of each community. The fifth member was the local health officer who lived in one village and maintained his office in the other.

This summary shows no precise similarity in contractual agreements. But it also discloses that responsible officials in neighboring governmental agencies can and do negotiate fair agreements that benefit all. It is further evidence of the strength of local governments and their ability to serve within our democratic society. ◄◄

Next month's installment will analyze inter-municipal sewerage compacts using the "authority," the "special district" the "metropolitan commission" and similar autonomous organizations.

Springfield placed heavy reliance on its four motor graders to keep streets open during last winter's unprecedented series of snow storms.

Emergency Plan Saves the Day

. . . as Springfield, Mo., battles the worst snow storms in 76 years of Weather Bureau history

By **W. E. HEDGES**
Director of Public Works

The total snowfall and length of the cold spell that hit us last March might be routine for many northern cities, but to Springfield it meant a task that was met only by exceptional effort. In fact, there are only two reasons for the city's success in coping with the problem: an emergency ice and snow plan based on 24-hour standby duty; and the loyalty and hard work of our city employees. The latter was formally and publicly recognized as will be explained later.

Springfield has, for quite some time, been using mechanical salt spreaders mounted in the bed of one-ton trucks for its ice control methods. Because the mild Ozarks climate of the area usually melts snow and ice within a day or so after it falls, we cannot justify capital investment in any amount for specialized snow and ice control and removal equipment. When heavy snows do arrive, we rely on the spreaders plus motor graders and front-end loaders and dozers.

The spreader-equipped trucks have steel frames and a canvas cover over the entire bed. Because we have no water-tight bulk storage bins, we purchase salt in 100-pound bags. However, we are planning to convert the spreaders to cab control and use bulk salt as soon as bulk storage facilities can be developed.

Record Storm

With mild weather throughout most of the winter, emergency crews had few days of ice-control work to perform. But then came the month of March and all weather bureau records of 76 years standing fell by the wayside. During this stormy period the ground was covered with snow for 27 days straight. The previous record of only 23 days was set in 1927.

The record-breaking storm hit us on February 27th with a ten-inch snowfall. Another six inches plus near-zero temperatures arrived on March 2nd, freezing rain on March 6th, more snow on March 9th, and four-inch and two-inch falls on March 14th and 16th. Minor falls and cold weather prevailed throughout the period and it was not until March 25th that the weather broke, permitting the sun to give some assistance.

However, our crews had little time for rest, for this unusual weather played havoc with Springfield's many miles of low-quality street surfacing, forcing the men to work overtime patching dangerous holes.

We maintain four emergency crews during the winter months; each crew consists of one section under a foreman from the Streets Division. The crews, numbering 12 men and normally assigned to construction, right-of-way and waterway clearing, street repair, and maintenance, are assigned standby duty one week at a time. The police department lists the name of the crew foreman on standby duty; as soon as the officers in the police cruisers determine that snow and ice control is necessary, they notify him. The foreman in turn calls two of his men who in turn notify the remainder of the crew. Oftentimes the street superintendent, public works director, or the foreman himself will call out the crew without waiting for a call from the police.

Once notified, the crew can report for duty at the Service and Operations Center and be on the job within 30 minutes. The spreader-equipped trucks, manned by three men, immediately go out on their predetermined routes. Night service crews of the Equipment

Three rubber-tired and two crawler tractor loaders handled about 2,000 truck loads of ice and snow mostly from bus stops and commercial areas around the city.

Maintenance Section have the trucks gassed and ready to roll upon the emergency crews' arrival.

We worked up the salting routes in such a way that each truck will begin salting on a route immediately upon leaving the Service and Operations Center. One truck covers primarily the downtown business area and the others cover all the major thoroughfares in the city street system.

Saving Factor

This system proved to be the saving factor when the big storm hit for we got the jump on the storm from the start; although we did not expect such a big snowfall or long period of bad weather, seldom were we behind the situation.

We did get caught short in one way. We ran out of salt on March 3rd, although we did have three orders of 36,000 pounds each in the works, two of which were enroute but stranded on the highways. We also increased our number of salt spreaders from four to six by purchasing two new "Tarco Scotchman" spreaders by emergency requisition on March 3rd. From March 3rd to 6th, when one salt order arrived, we were forced to use sand only. The salt order arrived on the same day as a freezing rain, and all crews were kept busy throughout that night.

During the course of the storm, from February 28th to March 25th, we used 223 tons of salt and 100 tons of sand. The estimated amount of money spent on ice and snow control for the season came to $28,000, more than was spent during any of the previous six years. One reason why the cost is relatively low is that our men do not receive overtime pay, but collect compensatory time instead.

Besides the salt spreaders, our crews used three rubber-tired tractor front-end loaders, two crawler tractor loaders, and our four graders. The loaders moved approximately 2,000 truck loads of ice and snow from the streets, primarily at bus stops and in the business area. From February 28th to March 20th the four graders put in a total of 901 hours plowing snow from a total of 869 street miles.

Although we feel that our crews did an excellent job in keeping the major streets clear, considering the equipment with which they had to work, we are still evaluating the performance of the Public Works and Street Division crews so that we may do an even better job should we again be hit by such severe weather.

Seldom are public works employees recognized for their work above and beyond the call of duty. However, on March 30th the Kiwanis Club of Springfield South, at the suggestion of Bill Snyder, reporter for the *Springfield Daily News*, held a testimonial dinner for all Street Department men and presented each man with a certificate of appreciation. Forty of the 70 men invited were able to attend the dinner, but all 70 received the certificate. Statements like "We are proud of the work you did," "You are our heroes of 1960," and "We express our sincere thanks to you" were made—and meant.

Overtime

Of the 70 men, led by Street Superintendent Paul Baron, some put in as many as 80 overtime hours in March; many accrued in excess of 50 overtime hours, and the total overtime accrued amounted to 2,230 hours, or an average of almost 32 hours per man, all to be taken out as compensatory time—not in overtime pay. Despite this fact, they went about their task with the attitude "we were hired to do a job, and this is part of it." ◄◄

This 48-inch medium-pressure transmission line is one of two mains connecting the new plant with various portions of the distribution system.

Although only two pumps are installed in the first stage, space has been provided for six 30-mgd units in the raw-water pump station. Intake structure is in the background.

Washington Suburban Sanitary Commission builds a new treatment plant and taps another source of supply that means . . .

No Peak-Day Worries

By **ARTHUR P. BRIGHAM,** Public Information Officer
Washington Suburban Sanitary Commission
Hyattsville, Md.

The close of another summer season marks the end of our "peak-day worries"—at least for a while. Completion of the first stage of the Potomac Filtration Plant means starting out next season with production capacity increased from about 80 mgd to 110 mgd. Three additional stages, to be constructed as required, will give the Washington Suburban Sanitary Commission a total capacity of about 200 mgd, enough to serve some 1.2 million people.

This plant also gives the Commission a new source of water—the Potomac River. Present sources consist of the Patuxent River (supplying the 65-mgd Patuxent plant and the 12-mgd Burnt Mills standby plant), and several wells serving a small area in Prince George's County.

Present growth statistics call for completion of the Potomac plant in 30 years, or by 1990. Each of the four stages will add another 30 mgd to plant capacity; the entire program has been planned to result in a plant having two sections, each capable of producing 60 mgd and of being operated as a separate unit if necessary.

Gravity Intake

The design of the intake structure and raw-water pumping station allows the water to flow by gravity from the river to the wet well. Two 60-inch gravity lines connect the intake with the pumping station. Manually cleaned bar screens in the intake structure prevent large pieces of debris from entering while two ten-foot-wide Rex Chain Belt Co. traveling screens located in the raw-water pumping station keep out smaller material.

From here pumps lift the water to the flocculation basins through a single 60-inch force main. Initial equipment includes two variable-speed Worthington vertical turbine pumps each rated at 32 mgd at 85-foot head. Each uses a 1,000-hp Electric Products motor to provide the driving power.

The earlier designs provided space for four more such units with piers installed for an addition to the building. Location of the station is above a possible dam site; should the dam be constructed, the pump motor floor will be raised and the pumps re-set.

Treatment

Treatment consists of flocculation, sedimentation and filtration. Initial facilities include two flocculation basins with paddle-wheel flocculators, four 80-foot-square settling basins with two equipped with Walker Process sludge skimmers, and six filters. Each filter can receive 5,000,000 gallons of water per day, based on a design factor of two gallons per square foot of filter per minute.

Storage facilities and feed equipment for alum, lime and carbon will be housed in the head house. The head house also contains a repair shop, office space and laboratory.

Filtered water storage consists of a single 6,500,000-gallon concrete reservoir. We will construct a similar reservoir with each 30-mgd addition to the plant.

A separate building houses all equipment and storage facilities for both pre- and post-chlorination. Basic units, all Fischer & Porter equipment, consist of two 8,000-pound feeders for pre-chlorination and two 2,000-pound feeders for

This aerial view shows the location of the various buildings: 1—intake structure; 2—raw-water pump station; 3—chlorine buildings; 4—finished water reservoir; 5—head house, filter building and settling tanks; and 6—high service pump station.

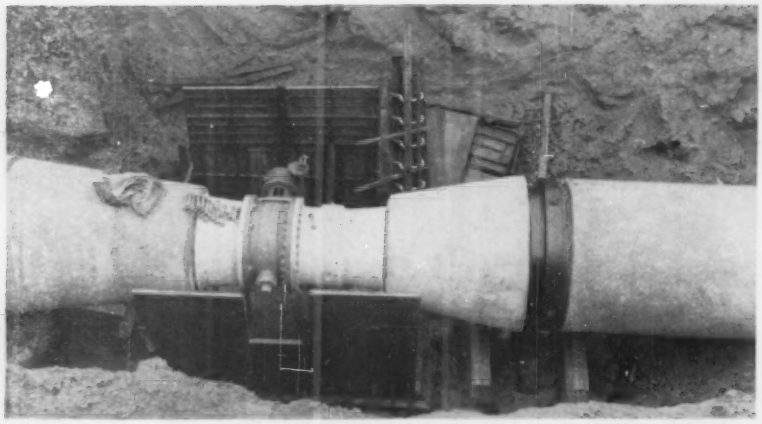
post-chlorination, plus the necessary evaporators. An American Monorail system provides easy handling of the ton containers from truck to storage and from storage to the scales. Each of the two Howe Mechanoprint scales can handle three one-ton containers at one time.

The high-service pump station is also a separate structure, centrally located with respect to the four finished-water reservoirs (one completed, three proposed). All pumps take suction from a single 66-inch header loop running longitudinally through the center of the building under the pump-room floor. The two discharge headers (one high pressure and one medium pressure) run parallel to the suction header and are located at each side of the building so that the pumps occupy the space between the suction and discharge headers.

Initial equipment consists of five Worthington centrifugal pumps and motors, but capped tees with valves already in place on the suction header provide for the addition of four more units. Two pumps, rated at 5,600 gpm at 430-foot head discharge into the high-pressure header while three pumps, two rated at 11,900 gpm and one at 23,800 gpm against a 280-foot head, discharge into the medium-pressure header. Motor ratings for these units are 900 hp, 1,000 hp and 2,000 hp respectively. Electrical equipment consists of I-T-E Circuit Breaker Company switch gear and General Electric controls.

The pump suction lines contain S. P. Kinney butterfly valves while the discharge lines are fitted with Allis Chalmers pneumatically operated cone valves and Darling gate valves. The butterfly and gate valves have manually controlled Limitorque operators. To expedite the handling of heavy equipment for maintenance and repairs, the pump house is equipped with a 15-ton Morris Wheeler bridge crane.

For the present, two transmission mains carry water from the plant



Construction proceeds on the vault around the venturi tube on the raw-water line.

to various points in the distribution system.

The 48-inch-diameter medium-pressure line which supplies the middle section of Montgomery County is about ten miles long and the 36-inch high-pressure line supplying the Montgomery County high-zone is about 12 miles long. Both are being constructed of Lock Joint prestressed concrete embedded cylinder pipe.

The opposite end of the discharge headers have been plugged until some future date when two more transmission mains will be constructed.

Since the Potomac Plant is located in an exclusive, semi-rural area, we gave special consideration to the architectural treatment of the buildings, providing attractive stone fronts, large glass areas and low-silhouette buildings.

Whitman, Requardt and Associates, consulting engineers of Baltimore, designed the plant and are supervising construction. Fisher, Nes, Campbell and Associates of Baltimore designed the architectural features. Malan Construction Corporation of New York is the general contractor for both contracts covering the plant, totaling approximately 6.3 million dollars. Ray Miskimmon is resident engineer for Contract I and Johnny Johnson is resident engineer on Contract II.

Commission Facilities

The first stage of the Potomac Plant will greatly improve service to the Sanitary District, which at present includes 427 square miles in Montgomery and Prince George's Counties, Maryland. To serve today's population of some 600,000 people the Commission has, besides the water plants mentioned, 1,650 miles of water mains, 16 pumping stations, 31 storage tanks with a total capacity of about 81 million gallons, and two dams and impounding reservoirs.

Although daily use averages around 46 million gallons, peak loads exceed 80 mgd, with a high recorded to date of 84.66 mgd. This peak is slightly in excess of rated production capacity, requiring heavy draw on the storage reservoirs during extended periods of hot, dry weather. The Potomac Plant will help end this problem. ◄◄

Landscape Architects Argue for More Open Space

The nation's landscape architects added emphasis to the demand by many others for more open space within the nation's urban complex and the conservation and beautification of areas for rest and recreation.

The American Society of Landscape Architects has made these arguments official by dedicating its 61st Annual Meeting, held in New York City recently, to the discussion of "Planning for Space."

Gilmore Clarke, consulting engineer and landscape architect of New York City, pointed out that urban areas would be wise to provide more spaces where the spirit might be refreshed, where man may escape the oppressiveness of our overcrowded fast-paced urban life. He pointed out that it is much cheaper and wiser to provide these than the mental institutions that have sprung up with the increased tempo of modern life.

James Felt, Chairman of the New York City Planning Commission, said that light, air and open space have taken on a new value in the past few years because the lack of these elements in the urban scene have driven people out of the city. He pointed out that areas of green are just as important as streets, sewage and water supply to a person's well being.

Growing Acceptance

Mr. Felt said that the value of open space has been apparent to architects for many years. Now with more buildings providing open space and landscaping, builders and real estate people are beginning to recognize the value of such facilities too. As an example, he pointed to Manhattan House, one of the newer apartment houses in New York City which provides open landscaped area and as a result has one of the longest waiting lists for prospective tenants of any apartment in the city. He pointed to such commercial structures as the Lever, Corning and Seagram buildings as other good examples of the value of providing open landscaped space. He pointed out that the growing acceptance of landscaping has reached the point where it is being supplied inside the building itself in many instances.

In order to encourage this tendency, the building code of New York City has devised a new space ratio that will, with a set-back, allow a building to increase its height. Thus a building can be constructed with an attractive exposure and still provide a heavy concentration of structure.

Commercial firms are more and more recognizing that wise space use does pay off in business—that it is as important to provide a good site that will be attractive to workers as it is to provide an excellent product for its consumers, Mr. Felt said.

Mr. Felt pointed out that New York City is planning to construct in Brooklyn its first industrial park. The area, a 95-acre tract, will provide railroad sidings, subway facilities and park-like surroundings to an industrial area. ◄◄

Sweeper to Pay Its Way in Three Years

A small community discovers that mechanization results in a cleaner city at less cost than manual labor

Although not effective on snow, Philipsburg uses its new vacuum-type sweeper to keep streets free of dust and dirt. With this unit, one man replaced a minimum of three on this work and covers more area.

Philipsburg, Pa., a little Allegheny mountain-top community of 3,700 persons, has taken on a new, clean look since the Borough Council purchased a gas-powered street sweeper last spring.

Previous to the purchase of the vacuum-type sweeper, the job of keeping Philipsburg's streets clean was done by a minimum of three men. Two of them comprised the broom force, while the third man drove the truck which picked up the piles of dust swept by the other two. Since the arrival of the street sweeper it is only necessary to employ one man as the sweeper-operator. Hence savings in labor costs alone to the borough will amount to about $3,000 per year.

Kale Z. McMasters, chairman of the Street Committee of the Borough Council, figures it this way: "The power sweeper does in one hour the same job it would take a man ten hours to do, thereby effecting a saving of nine man-hours of time and money." Within three years he estimates that the cost of the power sweeper will be saved.

Moreover, many of Philipsburg's secondary streets, which never knew the stroke of a broom before, have been swept since the purchase of the new power sweeper.

Greater Coverage

Formerly the street commissioner followed the policy of sweeping the "worst first." This usually refers to Front Street, the main business street of Philipsburg, where dust blowing from side to side of the thoroughfare has long been a major problem. Previously, what manpower and time remained after Front Street was cleaned was customarily devoted to cleaning through highways by the long, slow process of hand sweeping. Frequently these streets got swept only a few times a year.

Now, with the help of the new power-unit, it is possible to sweep all the streets of Philipsburg in about one day. In practice, however, it is impractical to sweep some of the less-traveled roads every day. So the vacuum sweeper is seen chiefly on the main avenues of the town during the early morning hours, going about its business of keeping Philipsburg clean.

The sweeper cleans a path seven feet four inches wide, including use of its two side brooms. It takes the sweeper about three trips up one of Philipsburg's streets, which are from 16 to 22 feet in width, to clean the entire road.

Usually, in operation, a trip up and down each curb is all that is necessary, since the breeze that is customarily blowing in this town, noted as being "the cold spot of Pennsylvania," adequately cleans the center of the roads, depositing the dust and dirt along the curbs.

Mr. McMasters points out that brush sections are usually replaced on the sweeper about every 50 to 150 hours, "depending on the condition of the streets being swept." But, Mr. McMasters adds, the purchase cost of the new brooms is reasonable.

Community Pleased

While the Philipsburg Borough Council is well pleased with its investment in good housekeeping equipment, it has been pointed out that the new vacuum machine was bought as a precision sweeper. So it is not used as a scraper in deep, mud-caked gutters, nor can it be used to remove leaves or snow. It does its most effective work on dry dirt and dust, the kind that blows into people's eyes and faces and makes them exclaim, "Why doesn't Philipsburg do something about it!"

Well, 163 years after its founding, Philipsburg finally took action against its dust problem and the people of the community, along with the Borough Council, are well satisfied with the results. ◄◄

These two pictures show the difference between the old and the new weed control programs. At left authors Hardy (right) and Chandler examine a clean roadside treated under the new program while at the right Mr. Chandler examines yellow star thistles not controlled by the old method of oil spraying and mowing.

Yolo County, Calif., replaces mowers with chemicals and gets . . .

Better Roadside Weed Control

By **CHARLES H. HARDY**, Agricultural Commissioner*
and **HERBERT W. CHANDLER**, Deputy Agricultural Commissioner

We've scrapped our mowers and oiling equipment and replaced this old-fashioned method of controlling weeds with a chemical herbicide program. This change reduced our cost per mile by 60%; nearly tripled the mileage treated; and still allowed us to stay within our annual budget of $25,000.

Ours is an agricultural county with valuable crops and application of herbicides is so accurate and safe that the method could well be adapted to suburban areas of cities where curb and gutters do not exist and roadside weed control is essential.

On January 1, 1959, the Yolo County Road Commission formally turned over the responsibility for weed control along our 890 miles of county roads to the County Department of Agriculture. This was an unusual step, but a sound one when you consider that weed control is essentially an agricultural problem. Before 1959 we had worked closely with our county road commissioner in testing a variety of materials and methods. These tests consisted of applying different herbicides at various rates along test strips as long as ten miles to help us evaluate the chemicals under a wide range of conditions. On the basis of this test work, we settled on the following program which has continued to give excellent results.

In the fall, between October and December, we apply 3.8 pounds of Simazine (Geigy Agricultural Chemicals) herbicide 80W, or six pounds of the 50W formulation, per acre in 100 gallons of water. This solution is sprayed along a four-foot to 16-foot strip between the bar pit (outer edge of grader blade line) and the fence. Simazine kills the annual broad-leaf weeds and grasses, and while a higher dosage would also clean out many perennials, we find it more economical under our particular condition to follow up later with a 2, 4-D application. In the spring we use 2, 4-D at the rate of two quarts of Weedone 638 (Amchem Products, Inc.) in 100 gallons of water per acre to eliminate these additional hardy perennials: morning glory, puncture vine, and Russian thistle. Our crews also spot treat Johnson grass and Bermuda grass with Dalapon (Dow Chemical Co.) in certain specific, localized areas where these weeds are a problem.

Low Cost

We like to think of Simazine as the hub of the program, with the 2, 4-D and Dalapon as spokes. This simple program keeps our roadside completely weed-free and the annual cost is only approximately $21 per roadside mile for all chemical, labor and equipment costs.

There are a number of other reasons why we like this program. A major one is that Simazine is a safe herbicide, safe to our men and to the equipment. It doesn't leach laterally or cause a drift hazard, which is especially important in our agriculturally diversified county; we've applied this chemical right next to alfalfa, peaches, tomatoes, walnuts and other valuable crops

* Mr. Hardy has been Agricultural Commissioner of Yolo County for 30 years. Yolo County is northeast of San Francisco in the Sacramento Valley.

Yolo County's Weed Supervisor, Charles Justus, finds that roadsides and ditches are free of growth after spraying with herbicides. Note the sharp line between the treated area and the grain field indicating the close control of the spray and the consequent safety to the adjacent crops.

without one complaint. The excellent weed control we have obtained pleases our road commissioner, especially since the need for grading road shoulders has been reduced, because one reason for grading, weed control on the berm, has been eliminated.

Other important benefits from this roadside weed control program don't necessarily show up on the balance sheet at the end of the year. For one thing, this program enables us to keep a small, reliable, highly trained five-man crew on a year-round basis. We also prevent weed seeds from contaminating the fields of farmers, which reduces *their* weed problem and appreciably lowers the weed seed count in grain at harvest time. Another advantage is that clean fence rows make it easy for our men to spot rodent burrows and place poison bait, thereby improving our control of these pests.

Assistant Fire Chief Carl Theile tells us that with this new program, he hasn't had a roadside fire in a year and a half, ever since this pro-

The forward position of the "nozzle man" gives him a clear view of the working area. The manual operation of the nozzle changes the spray width from six inches to as much as 16 feet.

gram started. Exhaust sparks igniting dead growth along the roadside cause over 90% of such fires and in the "old" days Mr. Theile had to fight as many as six such fires a day! On state roads, which still use costly mowers on roadsides, there are fires constantly. We figure that it's cheaper to spray herbicides than to put out fires.

The equipment we use to apply herbicides is "home-made" to cut costs and to have it the way we want it. We don't like booms because they get in the way when you come across stop signs and other obstructions. Instead, we have installed on our spray equipment an outside front-end seat. The applicator rides along on this seat, using a spray gun with an off-center Teejet nozzle with a TOC-150 tip. This produces a fan-type spray pattern with large droplets which the applicator can adjust from a six-inch to a 16-foot band.

Trucks

We have five trucks altogether: two 2½-ton, ten-wheel units with 1,000-gallon tanks; a 1½-ton Chevrolet truck with a 500-gallon tank; a 1½-ton Ford with a 750-gallon tank; and a one-ton International with a 300-gallon tank, mostly used for spot treatment. John Bean pumps on each truck are capable of developing 800-pounds pressure and deliver 60 gallons a minute. All trucks are equipped with tachometers so that the herbicides are applied at the correct rate. The trucks travel 30 to 40 miles per day with a two-man crew and this is quite an improvement over the past when a crew plus one truck would only average three to six miles per eight-hour day spraying oil. We plan to step up efficiency still further by equipping a 2½-ton ten-wheeler truck with a 2,000-gallon tank in our shop.

With this kind of equipment and well-trained crews, and with the safe, modern herbicides such as Simazine, we are able to stay within our budget while doing a more thorough, better weed-control job on more miles in the County of Yolo. ◄◄

New York Spotlights Middle-Income Housing

More than $90 million in loans for housing and urban renewal projects were extended to communities throughout the state by the New York State Division of Housing last year.

This program boosted the total of limited-profit middle-income dwelling units completed, under construction or in planning to 11,590, a figure almost 4½ times as great as the 2,647 units accounted for since the middle-income housing program got underway in 1955.

Of the $94,809,000 in loans extended since 1955, more than $60.5 million of that amount was committed during the past year.

A new function assumed by the Division during the year was administration of a $25-million direct financial assistance program in the field of urban renewal. As a result of this program, which helps communities finance their share of urban renewal projects carried out under Title 1 of the Federal Housing Act of 1949, the Division committed $4.8 million for projects in Albany, Binghamton, Catskill, New Rochelle, New York, Poughkeepsie, Schenectady and Yonkers. In addition, funds totalling $8,816,000 were reserved for future projects in Glen Cove, Greenburgh, Hastings-on-Hudson, Huntington, Newburgh, New York, Niagara Falls, North Tarrytown, Nyack, Peekskill, Rockville Centre, Rome, Sloatsburg, Suffern and Syracuse.

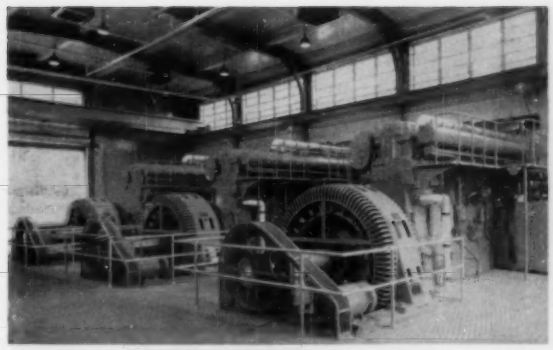
Another new function assigned to the Division by the legislature was the responsibility for the State Building Construction Code after the Commission which had handled this function since 1950 was abolished. During the year, 34 communities in the state voluntarily accepted applicability of the building construction code, bringing to 326 the total under its standards as of March 31.

The Division signed contracts totaling $13,765,000 for nine new public housing projects during the year. These new projects will provide 795 additional low-rent dwelling units in New Rochelle, Schenectady, Newburgh, Middletown, Nyack, Oswego, Long Beach, Fulton and Glen Cove. The end of the fiscal year saw the Division actively supervising the financing, construction and operation of 63,403, low-rent dwelling units in 113 projects throughout the state. These projects represent $880,377,400 in funds which have been committed under the state's public housing program. ◄◄

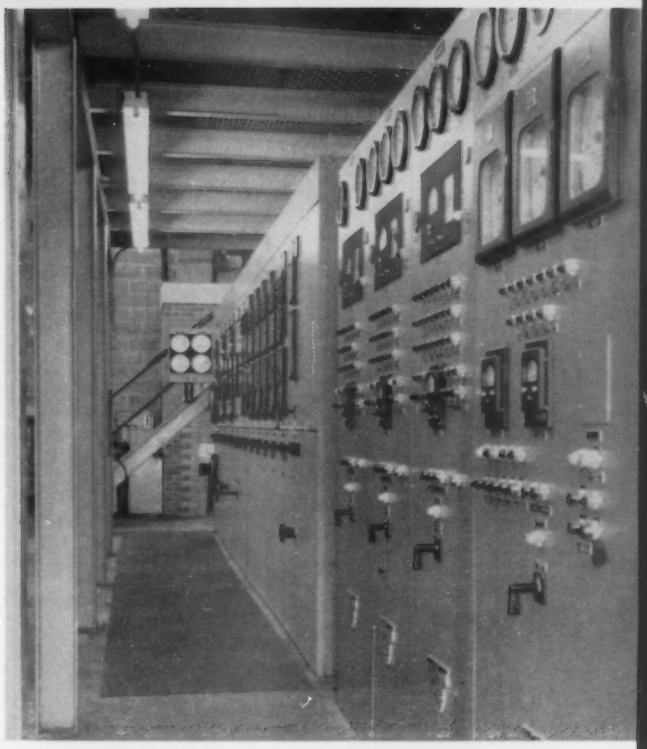
Colonial Architecture Pushed

Colonial-style architecture is being pushed in Mount Holly, N. J., through a voluntary program with strong local backing. The township government encourages but cannot insist on compliance. However, a local ladies' organization known as the "Young Shopper's League" serves as the spearhead. They offer patronage or threaten to boycott depending on the degree of cooperation they receive. They expect to make the entire downtown area Colonial in about ten years. To date, about four store fronts have been remodeled in this way. ◄◄

A little local urging is bringing colonial buildings back in style in Mount Holly, N. J.



A few skilled men can operate powerful diesel-electric plants like this with the help of automation.



A knowledgeable supervisor can use a complex, heavily instrumented switchboard like this to exercise precise control over operations like water and sewage purification.

Automation—the Municipal Tax Saver

By **E. R. SAUDER**
Controls Specialist
Cooper-Bessemer Corp.

While automation is not the sole answer to the manpower and cost problem, it can go a long way toward cutting cost for municipal service plants. Automation does not mean that you fire all of your trained and experienced workers the day after you "automate" your plant; but with automation, your present skilled workers can operate the growing plant more efficiently and without the unskilled worker's assistance, now necessary. Thus, you can upgrade your skilled labor on par with industry and still reduce payroll cost. Also you can create greater job satisfaction and dignity by taking drudgery out of some of the menial work found in every plant.

Any operation usually found around service plants now performed or actuated by human power may be performed or actuated by automatic control devices. Automatic controls with their speed and accuracy, combined with the innate ability of the human mind to direct and comprehend, enables man to control any natural force. The degree to which automation is extended should be governed only by the economic factors present.

In water supply and purification, the prime movers driving pumps or auxiliaries, either engines or motors, may be started, controlled and stopped by control devices tied to programming pressure and volume controls. Likewise, motorized valves may control the system and the various treatment functions. This system could be completely automatic or semi-automatic, and operated from a central control panel.

Several of our large cities have sewage treatment plants that are control-panel operated. The prime movers operating the aerating pumps may be automatically controlled as well as the valves controlling fluid flow and chemical treatment. Here again, the plant can be controlled from a central control panel.

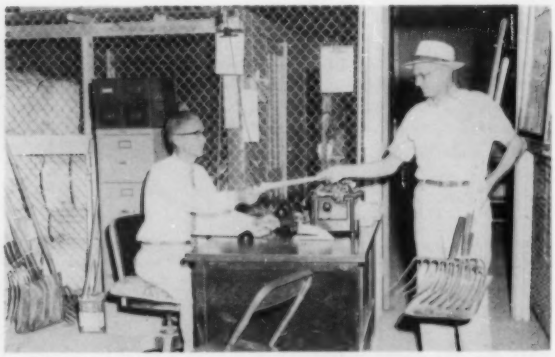
Electric Power Plant

The municipal power plant is usually one of the profitable operations of a city. Many city governments find that their diesel or gas-diesel power plants are making substantial contributions to city revenue. This revenue may be increased by automating the power plant. Plants are now in operation that operate on a demand basis: that is, the engine-generators are automatically synchronized and put on and off the line as power demands rise or fall, without the attention or skill of plant operators. Through the installation of adequate safety controls, these plants are protected from fault damage to a far greater extent than possible with complete manual operation. Thus, no small part of cost reduction comes from protection against possible damage, and controlled pre- and post-lubrication and cooling cycles consequently extend the useful life of the equipment, increasing the profit margin of the plant.

The booming population upswing as foretold by our nation's economists will tend to increase this spread between the cost of municipal services and the revenue derived. The forward-looking city of the 60's will have to be well acquainted with the various "functions" and "tools" of automation as connected with municipal service plants. 1960, the first year of this new decade, is an appropriate time to start a thorough appraisal of how automation can upgrade all municipal services. ◄◄

Garbage ordinance violations are reported by the collection truck driver and immediately investigated by an inspector. Violation here includes a container without a cover and garbage obviously scattered by dogs.

An on-the-spot survey of all premises made by the department's inspectors provided information for establishing and balancing collection routes.



At the close of each day's work the route operator turns over to the supervisor a report of the day's activity and checks in all tools.

Good Records Mean Better Control

. . . resulting in improved collection service, fewer complaints and more flexible operation of the Montgomery, Ala., sanitary department

By **L. B. GREEN***
Superintendent

The recent annexation of 17 new subdivisions with a total of 1,256 residential units emphasized the need for good internal control in the Sanitary Department. With approximately ten collection routes affected, a more accurate and comprehensive method for setting up and equalizing routes had to be developed. At the same time we decided to set up and maintain various records to expedite all phases of the Department's operation.

In connection with establishing and balancing collection routes, our chief inspector, J. M. Downes, suggested the idea of making a complete survey of each residence in the city, listing the number of garbage cans at each residence and any other pertinent information.

To maintain our service of back-door garbage collection twice weekly, the Department utilizes 30 trucks to cover the 60 residential routes. The survey revealed that we have 33,123 residential units with a total of 41,293 containers. Thus each week residential garbage collection constitutes the servicing of 66,246 units with 82,586 cans to be emptied. The average route consists of 535 units and 638 containers.

On Wednesday of each week the crews pick up such items as tree limbs, litter and general debris. Also each week 80 Dempster Dumpster containers are emptied a total of 232 times by two crews.

Indexed Directory

Department inspectors made the survey by riding over each route. We then compiled the data into

* Mr. Green, Superintendent of the Sanitary Department of Montgomery, Ala., described the city's multi-dump sanitary landfill program in the September 1958 issue of THE AMERICAN CITY, beginning on p. 118.

The average daily work load of each collection crew consists of collecting 638 containers from 535 residences.

an indexed directory, listing such information as street, block and numbers, days worked, and route or routes to which the street is assigned. Since some streets are several miles long, they may be worked by as many as four trucks. In such cases we list the blocks that each truck works. Another index lists route numbers and operators assigned to the routes. The last section of the directory gives complete information such as route number, street name, beginning and end of the route by block number, days worked, number of stops, number of cans and the driver assigned to the route.

Liaison

To provide better liaison between inspector and driver and to promote better understanding of each other's problems, we assigned each inspector permanently to the routes or area he surveyed.

Under this system, equalizing routes is a simple matter, requiring only the shifting of the proper number of units from one route to another and retyping the affected sheets of the directory.

The drivers report all garbage ordinance violations to the office and the proper inspectors contact the offenders personally. Each case is listed by street and house number in a complaint directory. When a resident calls in a complaint, the directory is checked while the complainant is still on the telephone. Should we find a report previously made on the premise, we notify the caller and request correction of the condition so as not to incur further service interruption.

Each morning prior to 9:00 A.M. the supervisor submits to the superintendent's office a dispatch sheet of the day's anticipated work plus a report on the previous day's work. The *anticipated* work report lists equipment, route number, names of operator and crew, area to be worked and general job assignment. The *completed* work report outlines in detail the number of loads hauled, time of beginning and completion of task and, if the task was not completed, a full explanation plus a list of streets and blocks not serviced. Also listed are explanations of employees' absence, weather conditions and temperature.

With such data available, we can inform any person reporting no service about the reason for the delay and assure him that his garbage will be picked up promptly. Also, all their complaints can be handled intelligently.

Inspectors must also state on a dispatch sheet the sections they will work during the day and all inspections or re-inspections that are planned.

We also maintain an alphabetical complaint file. Complaint forms, made in duplicate with one copy going to the proper inspector, list the date received, address and full inspection.

When the form has been completed, the permanent record copy has listed on it the dates inspected, the completion date and the final disposition of the matter.

Daily street sweeping reports, made out on the job, serve many useful purposes.

Claims Proved False

The sweeper operator's report lists streets swept, and each month we bring together the daily reports to give us a monthly record of street sweeping. This report goes to the

mayor and the public works commissioner so that they may know what work is being done. Should an irate citizen call the mayor, the commissioner or our office, the record is readily available to disprove or confirm the report. When a person calls saying it has been months since his street was swept, and we can answer him by giving the exact date, the argument is over.

All reports, at one time or other, have proved to be invaluable. Not long ago a resident charged that a street sweeper sideswiped his car the day before, that he saw physical evidence on the street by his car and that the sweeper had left a tell-tale mark. We informed him of our daily reports, checked the record and found that the sweepers had not operated that day because the streets were too wet from rain.

The complainant said " I have no further argument" and walked out of the office.

We also keep individual folders for each piece of equipment which contains every work sheet pertaining to the equipment. At the end of the year, the office staff computes the total cost of repairs for each unit; if it is found excessive, a check is made of the individual work sheet. Year-by-year maintenance-cost records also help us prepare and support budget requests.

Lubrication Schedule

A lubrication chart, kept in the refuse collection supervisors' office, make certain that each piece of equipment is lubricated on schedule. Each driver must bring a service receipt, in duplicate, from the city garage, signed by both the operator and the mechanic. The supervisor retains one copy and forwards the other to the office to be filed in the proper equipment folder.

Tools are checked out to the individual operators each day and must be checked in again when the day's work is completed, at the time reports are made to the supervisor. This procedure practically eliminated tool loss, for only six tools have been "misplaced" in the past 12 months.

We feel our newly adopted program is well worth the effort. It affords the flexibility needed to meet rapid growth of the city and provides essential information for sound budgetary and operating procedures. The various reports keep our own operating personnel "on their toes" and also help us provide intelligent answers to complaints—and ward off false complaints. The final result is more efficient operation on the part of the Sanitary Department. ◄◄

TV for a Mountain-Top Village

Tucked away in the notch of Anderson Valley, amid the fir-green hills of California's coast range, is the sheep-raising and logging community of Boonville, population 350. The people of this community need TV for entertainment more than most but, until recently, their need was little more than wishful thinking.

Their only solution was a "booster" station, high enough to beam coverage over the entire valley area. But the cost of bringing commercial power lines to a mountain top was prohibitive. What they needed was self-sustaining power which would be dependable and more economical.

The answer was two Onan electric generating plants.

In May 1958, the people of Boonville started a fund-raising drive promising "Better TV by Christmas!" and raised over $11,000.

Everyone gave something . . . even the youngsters.

Every able bodied man helped with the construction. Lumber, concrete blocks, equipment—all had to be hauled to 2,000-foot-high Grizzly Peak. When the building was completed, the two Onan units—one for operation and the other for standby—and a Line Transfer Control were installed.

By Christmas Day, the people of Boonville and outlying Anderson Valley sat back to enjoy boldly clear TV made possible by the booster station's capacity to "translate" VHF beams into usable UHF.

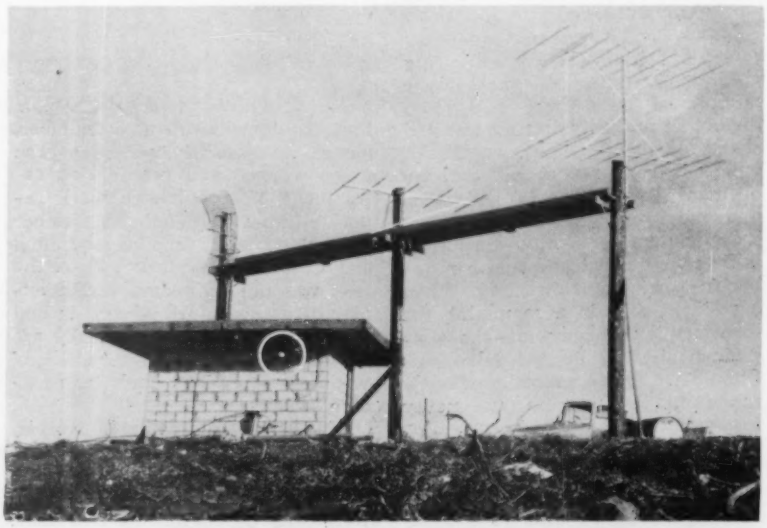
One of the unique features of the electrical hook-up is the automatic control panel installed which stops the generating plant when the following conditions occur: overspeed, low or high voltage, low oil pressure, high air temperature.

The moment the plant stops, the Line Transfer Control switches the load to the standby unit.

Every week or ten days, a Boonville volunteer heads for Grizzly Peak to check on the rugged little generating plants, and alternates the load from one unit to the other.

What do Boonville residents think of the improved TV service?

Homer Mannix, sole appliance, hardware and TV dealer in Boonville, and publisher of a local paper, reports: "My TV set and converter business volume increased by 80%. It was not only a boon to business but also to our social lives and general economy. A number of our residents had moved to nearby towns because of our poor TV reception. Several have moved back here since we put in our translator station." ◄◄



This booster station on top of Grizzley Peak beams big-city TV to Boonville's 350 residents. The light, circled, assures that the generating plant is working well.

Rotation Tree Pruning

Dayton, Ohio, starts a tree-maintenance program on a 5-year rotation basis that protects street trees and clears traffic and pedestrian hazards

By **R. MILLER**
City Forester

One of the benefits of the municipal income tax in Dayton has been an improvement to the city's many beautiful and graceful trees. With the help of funds from this source, the city has adopted a four-step tree-pruning program that should be in its final stage at the end of this year.

The work involves both pruning and removal as well as miscellaneous repairs and small cavity filling. Pruning includes clearance for roadway and sidewalk rights-of-way; provision of a six-foot minimum distance to building roofs; and clearance for traffic and street lights, stop signs, etc.

Our crews prune to remove low and dead limbs, the lesser of two rubbing limbs, diseased and damaged limbs, and broken limbs. We make all cuts flush with the trunk, and carefully paint all pruned areas that are over one inch in diameter, applying a tree-wound dressing. We remove trees that are dead, dangerous, or diseased beyond the point of recovery. In the latter two cases, either the Assistant Forester or I authorize removal.

The records of this work provide our Bureau with a tree inventory of the street-tree population by species, size and class, and the tree-lawn width throughout the city. All of this will be helpful in devising a master tree-planting program. We believe that we will be on a five-year pruning cycle after about the third time around. The present backlog of large, low limbs requiring removal and diseased trees needing to be cut out all mean that the first few times around will be the slowest.

We equip our tree-service men thoroughly. The list includes safety saddle (Kuemmerling); 120 feet of ½-inch safety line; one-man chain saw (McCulloch, tied in); safety cap (Jackson); pull saw (Atkins); scabbard (Kuemmerling); paint pot (home made); pole saw or pole pruner.

Other equipment used by rotation pruning crews includes aerial lift trucks, boom trucks, brush chippers, chip boxes and trucks, traffic safety equipment (cones, flags, lights, signs), and miscellaneous hand tools (axes, brooms, etc.).

We believe in completion of work as we go. We cannot leave brush lying overnight or for several days, except in the case of extensive storm damage. Each unit is self-sufficient. Only rarely will a crew need another crew's specialized equipment, such as an aerial lift or a boom truck, and then only if its own equipment is down for repair.

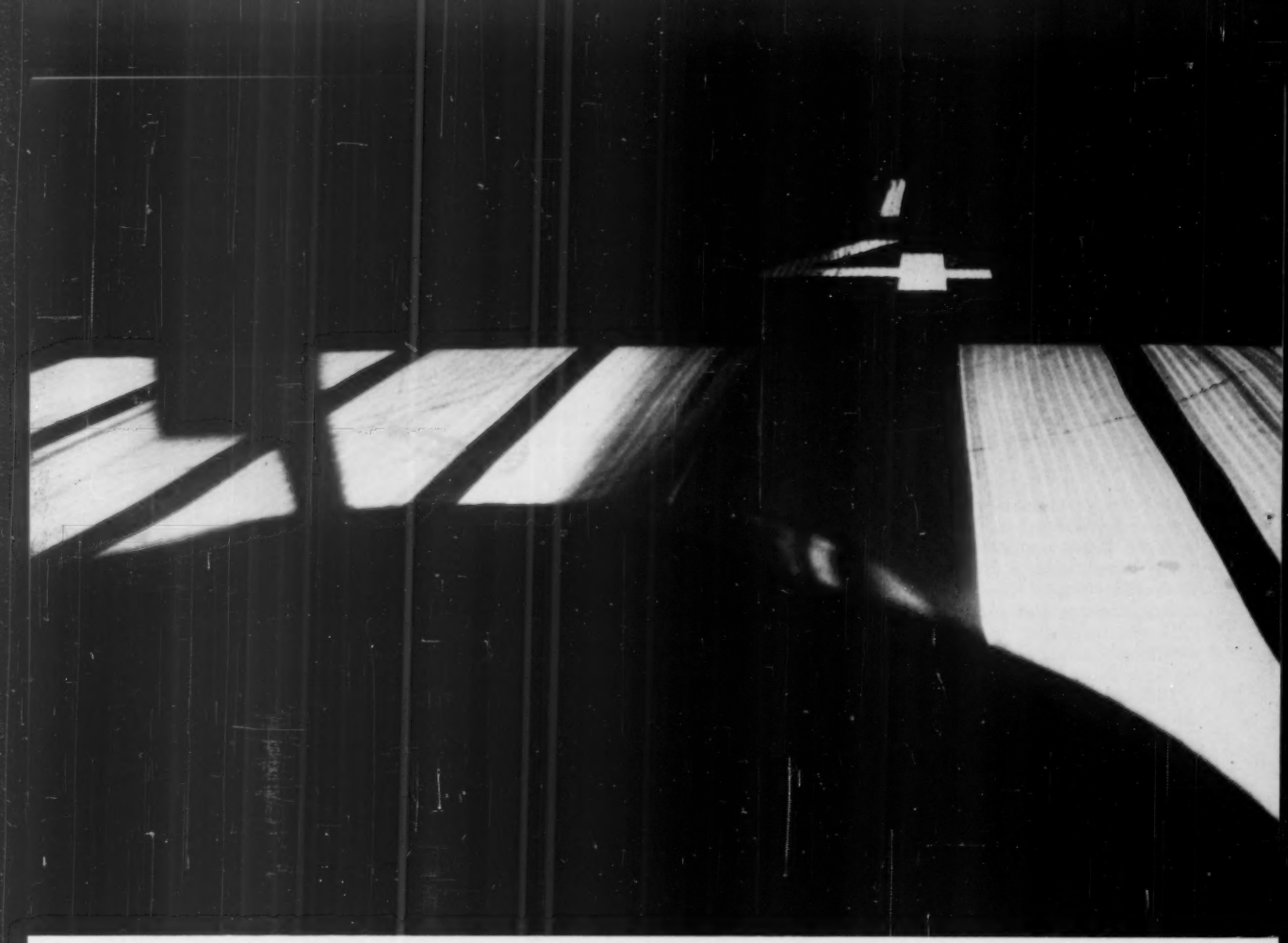
The aerial-lift units are particularly useful. Our crews use a Mobile Aerial Towers hydraulic Hi-Ranger lift with a 40-foot lift and a 370° turn. It also has a hydraulically-dumped chip-box, an air compressor, and an over-the-cab platform. It tows an Asplundh trailer-type chipper which feeds from the rear and discharges the chip into the chip box. While it is primarily used on pruning, it is handy for flag-pole painting, rope replacement, picture taking, light-bulb replacement, installation of Christmas decorations, line clearing and other odd jobs. We recently purchased a second unit with a continuous rotation feature, and a 50-foot reach. This unit mounts the chipper.

We have a boom truck to load limbs. Its loading crane is truck-mounted and hydraulically operated, and tows a Kuemmerling brush dump trailer with extended side-boards of our own design. ◄◄

A trimmer relieves a maple of an undesirable limb, extending over the roadway lower than the 13-foot limit.

A truck with a crane (left) hauls away limbs and logs. When work is completed, sidewalks and streets (right)

will be cleared for pedestrian and auto traffic and streest will retain beauty and charm.



Coming in at night, reflective numerals and threshold markings provide a frame of reference for pilots.

Reflectorizes All Runways

By **A. K. HAYES**, Manager
St. Petersburg-Clearwater International Airport

With the application of reflective granules to all of its operating runways and taxi strips, the St. Petersburg-Clearwater International Airport, Fla., has become the first civilian airport in the world to reflectorize its facilities for night-time landing safety.

Runway numbers, center lines and threshold markings are brightly visible in the landing lights of approaching aircraft, and afford depth guidance for pilots at night.

EDITOR'S NOTE: Mr. Hayes' article reminds us of the fact that the world's first scheduled passenger and cargo air service began over 45 years ago at St. Petersburg, Pinellas County, Fla. With over 1,000,000 tourists visiting the County annually, the facilities of the new St. Petersburg-Clearwater International Airport were needed to accommodate the constantly growing air traffic.

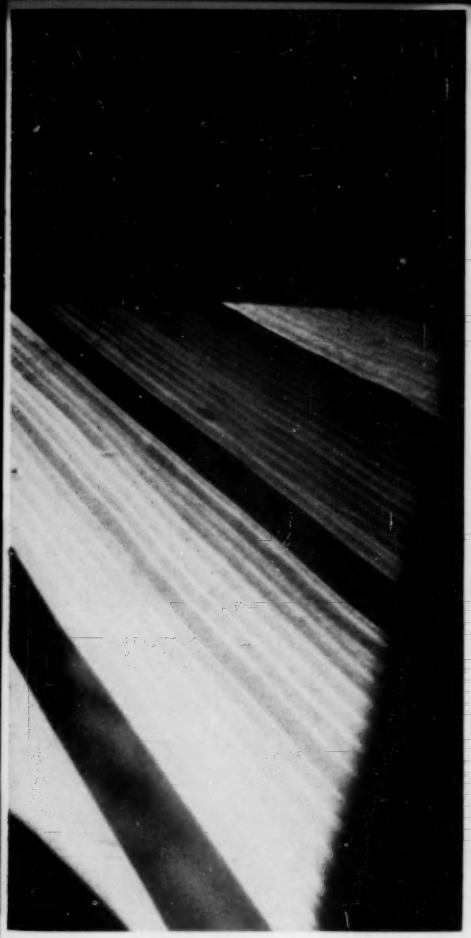
Initial Test

Reflective granules and binder paint, called "Scotch-Rok," a product of the Minnesota Mining and Manufacturing Co., St. Paul 6, Minn., were tested initially for a year at Richards-Gebaur Air Force Base, Missouri, where installations officers observed an improvement in night visibility and subsequently recommended the material for use at other air defense bases.

In keeping with standard practice, runway markings at St. Petersburg-Clearwater are white: taxi strips are yellow. The granules are reflective wet or dry. This last quality is especially significant in Florida where frequent thunderstorms often leave water on the runways.

To assess the performance of these reflective markings, we first applied them only to our 4-22 runway, which runs northeast-southwest. Max Battle, airport consulting engineer, supervised the application of reflective granules and binder paint to 8,000 square feet of the asphalt runway, marking the two outside thresholds on each end of the runway, every other "dash" in the skip-line down the center, and the numerals.

A standard traffic striping machine was the only equipment required. The four inside thresholds at each end of the runway were reflectorized with "Centerlite" pre-



The author, left, studies airport expansion plans with Max Battle, airport consultant from Harold Wilde Associates, who supervised the application of reflective granules to the runways and taxi strips.

mix compound to afford a means of comparison on durability.

After five months of use (our 4-22 runway received most of the traffic during that period; five airlines and one cargo service regularly use the airport) the entire application showed no decrease in reflectivity at night and no brush-off from wheel impact. It will be evaluated again after it has undergone a full year of use.

During heavy rains, some of the touch-down marks have been eradicated from the reflectorized areas; evidently vulcanized rubber, left at the point of the impact, does not adhere to the granules and binder paint as much as it does to ordinary asphalt surfaces.

On the basis of these results we reflectorized the remaining runways. Pending Federal Aeronautics Administration approval, the north end of 17-35, our all-weather runway, will be extended 2,100 feet to give us a 7,000-foot runway. All runways are presently about 5,860 feet long.

Total Application

Total application of reflective granules is 109,000 square feet of white to runways, 5,500 square feet of yellow to taxi strips. Since reflectorization, there have been no night landing mishaps.

Supersonic air transportation is close to becoming a reality and it will have a profound effect on existing airport facilities. In a relatively few years airliners will fly at least 2,200 miles an hour, crossing the nation in 80 minutes, traveling from New York to Paris in two hours.

Probably they will operate from present metropolitan runways of standard length. They will land at greater speeds, giving the pilot less time to adjust his approach and forcing him to rely more on every mechanical and electronic aid available.

Yet even these aids are, in effect, "eyes" designed to improve "visibility" under all conditions. Reflective runways and taxi strips are an economical means of improving visibility, and they work independently of all other devices except the landing lights of approaching aircraft. ◄◄

This view taken from the roof of the pre-treatment building shows the north half of the Torresdale plant. The north and south sections may be operated as independent units.

Philadelphia's new Torresdale plant combines the latest in pneumatic and electronic technology to provide for water treatment in . . .

An Atmosphere of Automation

By JOHN A. DILLENER
Supt., Torresdale
Treatment Plant

A quick trip through Philadelphia's new Torresdale water filtration plant gives the impression that it differs little from other modern installations. It is big (maximum capacity, 423 mgd); impressive (occupies a 25-acre site with buildings and basins covering ten acres); and architecturally appealing. The big difference, however, is in operation and instrumentation. We call it semi-automatic, for it is the closest to automation yet achieved by any water treatment plant.

Although numerous problems presented themselves during the first nine months of operation, semi-automatic operation has proved that it is not a headache.. It's a pleasure to work in the automation atmosphere at Torresdale, and we feel that our "lead" will be followed in ever-improved control systems. Everyone who has been associated with the plant is extremely proud of it.

Twice every 24 hours the rising tide pushes water from the Delaware River into a 176-million-gallon sedimentation basin from which the raw-water pumps take suction. Flap gates in the entrance channel prevent water from flowing into the river from the basin as the tide recedes. When these gates open and water begins to enter the basin, a signal transmitted to the pre-treatment chemical building starts the chlorinators. When the tide reaches its high point and the flow stops, the chlorinators also shut down. Thus, pre-chlorination is automatic.

Allowing for short circuiting, the sedimentation basin provides from six to 20 hours contact time. We pre-chlorinate to break-point, and under normal conditions this provides a residual of 0.2 ppm throughout the plant.

Conduits

Two 96-inch conduits carry raw water from the pump station to the plant and each is fitted with a 96-inch venturi tube at the entrance to the pre-treatment building. Taps off these tubes transmit an air signal to the master control panel, giving the flow in each conduit. A separate tap transmits an air signal to each of the plant's chemical feeders.

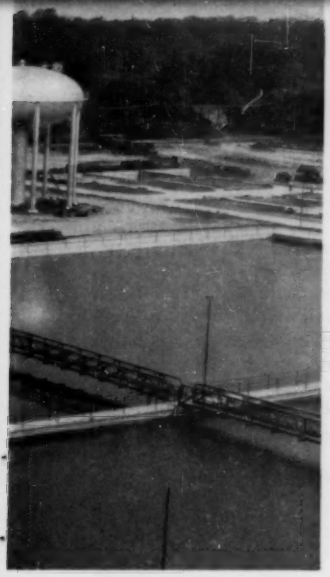
The instruments and controls are so set that once the dosage of alum, lime, carbon and chlorine, if necessary (as well as chlorine dioxide if needed) is set, the feeders, paced by the flow entering the plant, automatically feed the proper amount of chemical.

The 120-inch venturi tube in the plant effluent line controls the chemical feeders in the post-treatment chemical building and also sends a signal back to the chlorine feeders in the pre-treatment building which provide post-chlorination by means of a special chlorine line. Again, the feeders are paced according to flow in the effluent line, maintaining the set proportion throughout the flow range. A recorder-totalizer located on the master control panel in the filter building records plant effluent.

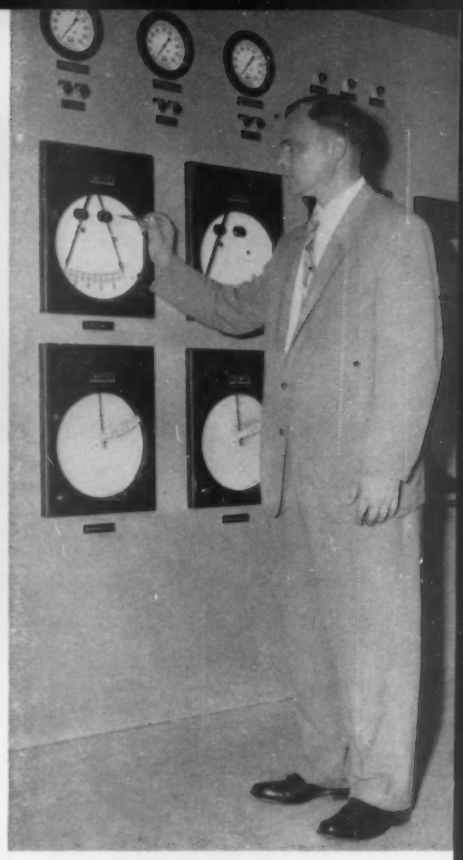
Post chemicals include lime to raise the pH, fluoride for prevention of dental caries, phosphates for threshold treatment to prevent pipeline corrosion, and chlorine to maintain a residual of 0.75 ppm to 1 ppm as the finished water leaves the plant.

Filter Control

The filters may be controlled in four ways, providing considerable flexibility. First, the effluent rate controllers may be controlled by the



Philadelphia's Water Commissioner Samuel S. Baxter (left), and Chief of Water Treatment Ellwood Bean inspect one of the plant's 48 filter consoles.



Plant Superintendent Dillener points out various features of the Master Control Panel. Information includes the quantity of chemicals in storage, which feeders are in service, flow of water entering plant, and rate of chemical feed.

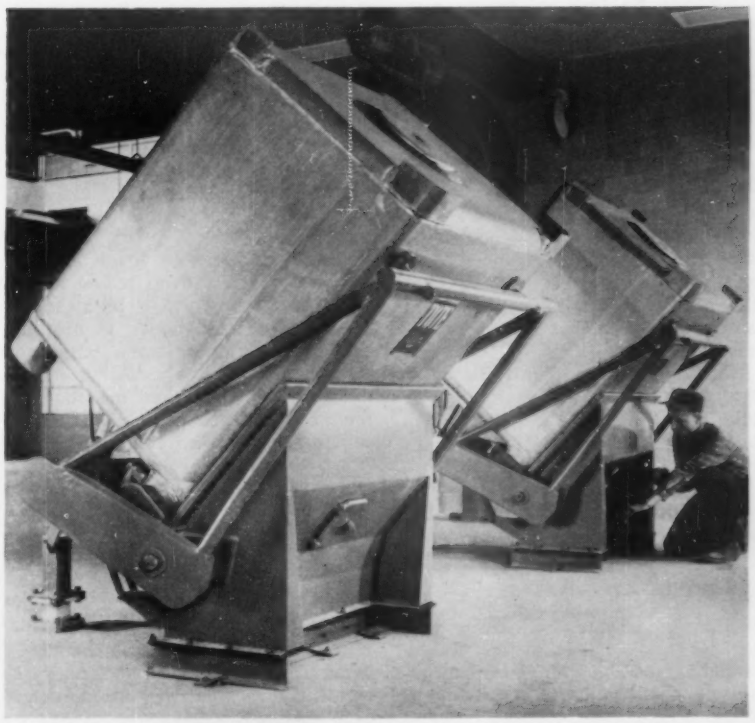
water elevation in an existing 50-mg clearwell which receives the finished water. By means of a transmitter, a pressure diaphragm in the clearwell sends an electrical signal to the plant where it is reconverted to an air signal to control the air-operated butterfly-valve controllers on each filter. Thus, as the water level in the clearwell drops, the filtration rate is increased, and, as the level rises, the rate of filtration decreases.

A second method consists of setting a master "stack" controller to a given rate (for example, 200-mgd rate for plant output). With this done, each filter will operate continuously to meet set demand.

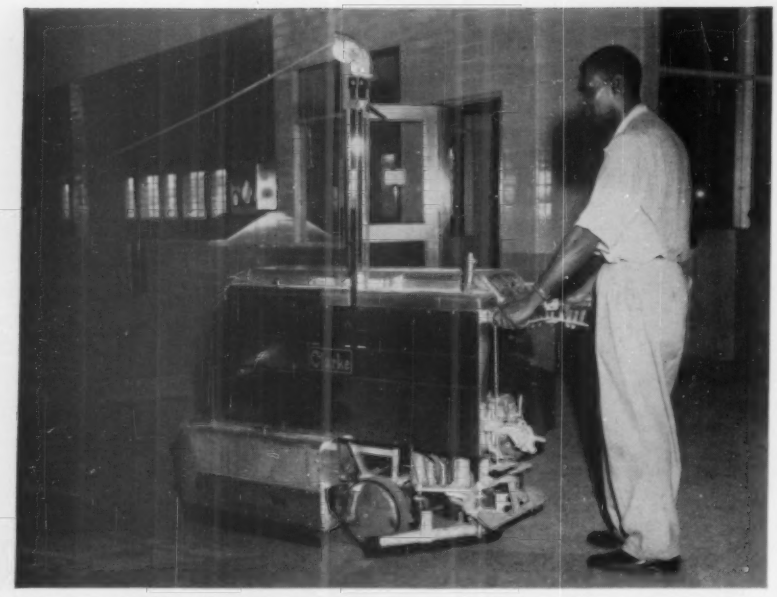
The third method utilizes the post-treatment building weir. A set point as to number of inches of water flowing over the weir board is selected and the filters in service automatically maintain this flow.

The fourth method consists of cutting out the master controls which then allows the operator to set each filter individually. Under this system filters need not operate uniformly as to rate of output.

The 94 filters are divided into two sections of 47 filters each. Forty-six filters in each section are twin units with a common influent



Phosphate, used to prevent pipeline corrosion is handled by these sealed aluminum containers from the point of supply until the material is dumped into the mixing tank.



Even floor washing is automatic at the Torresdale Plant. The scrubbing machine applies the soap solution, scrubs the floor, and removes the water in a one-pass operation.

trough and drain trough, while one filter in each section is a single unit.

Each section may be operated independently, thus one section may be operating according to the water level fluctuation in the clearwell while the filters in operation in the other section may operate at a pre-set rate. This provides additional flexibility.

Backwash

At a pre-determined head loss, presently set at 6½ feet at a 3-mgd rate, a red alarm light turns on indicating to the operator that the filter has attained the loss of head which is desired for wash purposes.

The operator may put the filter directly into the backwash cycle or take it off the line temporarily to be washed at a more convenient time.

To wash a filter, the operator merely pushes the backwash button which starts the valve sequencing. Immediately the intake valve closes, allowing the water level on top of the filter to go down. A bubble tube senses when the water level reaches the top of the troughs and relays an electrical impulse which closes the effluent valve.

A contact point on the Limitorque operator senses when the valve has closed and signals the drain valve to open. When fully opened, another signal opens the surface wash valve and when this valve is fully opened another signal starts the surface wash pumps. Starting of the pumps also sets a timer in motion to time the surface wash.

As soon as the timers start, they signal the wash-water valve to open and, when it is opened, the rate controller in the foot of the wash-water tank opens to a pre-determined rate (20,000 gpm for a single filter and 40,000 gpm for a double unit).

Should the water level in the washwater tanks drop below a set point and more water be needed, one or two wash-water pumps go into service. These units pump to the filter during the wash cycle and the rate controllers at the foot of the tank adjust automatically to provide the balance of flow needed. After the wash cycle is over, the pumps refill the tank.

Safety Device

A built-in safety device does not allow a second double-filter unit in either section to go into the wash cycle if one filter unit in the section is already in the wash cycle. Thus four filters can be washed simultaneously (a twin filter unit in each section).

Chlorine is received in railroad tank-car lots and spotted on one of two Fairbanks, Morse scales large enough to handle 30-ton or 55-ton cars. Chlorination facilities, all Wallace & Tiernan equipment, includes eight 8,000-pound feeders, four 5,000-pound feeders, and four 2,000-pound feeders, plus the necessary evaporators.

The chlorination control panel and flow recorders occupy a room adjacent to the chlorinators. A Panalarm system on each panel governing four chlorinators indicates the location of a malfunction should one occur, saving a lengthy search period.

Dry Chemicals

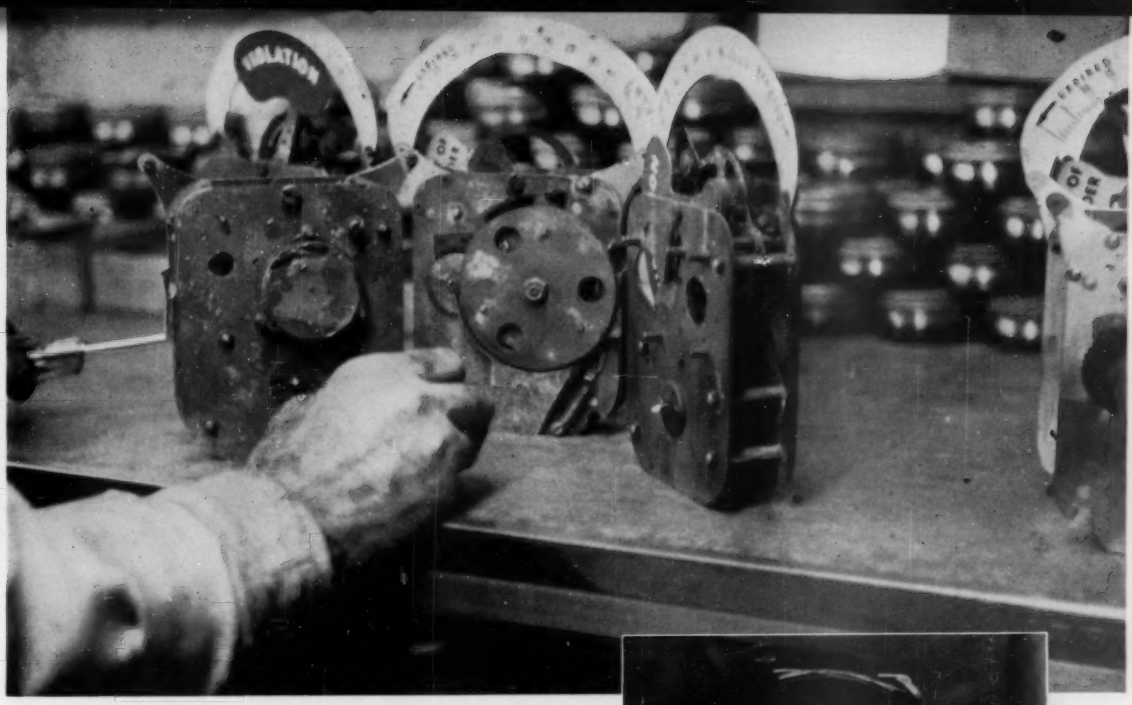
All dry chemicals in the pre-treatment building are fed by means of Builders-Providence equipment while Milton Roy pumps with Reeves drives feed sodium chlorite. A system of Brady air-vacuum and screw conveyors handles the dry chemicals.

Chemical feeders in the post-treatment buildings are all Builders-Providence units with the exception of two Lapp Pulsafeeders used for phosphate. Except for phosphate, dry chemicals in this building are handled by a system of National Conveyor air vacuum and screw conveyors.

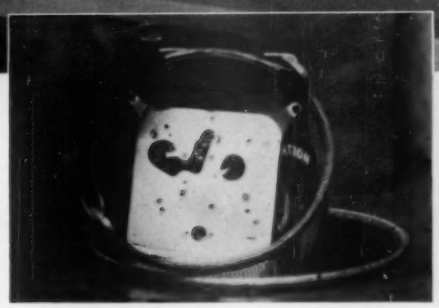
Although they are used throughout industry, the Torresdale plant is the first water plant to use Tote Bins for chemical handling, a method devised by Tote Systems, Inc. of Beatrice, Neb. Each of the 34 Tote Bins used at Torresdale holds about two tons of the pelleted metaphosphates. They are shipped on open flatbed trucks to the plant, from the chemical supplier. At the plant, a fork-lift truck removes them from the truck, places them in storage and also carries them to the Tote Tilt discharge station. An airtight seal, which is opened only at the time of emptying the bin into the mixing tank, protects the hygroscopic pellets from deterioration.

The Brown Instrument Division, Minneapolis - Honeywell Regulator Company, designed and installed the extensive system of controls and instruments used throughout the plant. This work alone entailed an expenditure of approximately $500,000.

Morris Knowles, Inc., consulting engineers of Pittsburgh, designed the plant, working with the Water Department engineers. Walter Antrim of Philadelphia was the architect. Some 36 contractors and subcontractors participated in the construction of the plant. ◄◄



Soiled and corroded after two-years' exposure, these meter mechanisms are typical of those overhauled by Broadway Maintenance specialists.



As soon as parts are place in the ultrasonically-agitated chromic acid pickling tank, soil, and tarnish begin to disappear. After two minutes, meter components are taken out of the acid, neutralized, rinsed ultrasonically, and oven-dried in one minute.

Parking Meters Cleaned Ultrasonically

Overhauling parking meter timers after two years' exposure to extreme temperatures, grease, dust, and grime used to be time consuming. Since installing a 500-watt Sonogen ultrasonic cleaning system, the Broadway Maintenance Corp., Long Island City, N. Y., has cut reconditioning from 30 minutes to under ten.

After disassembly, parts from each meter are placed in an aluminum pan to keep them together. By not mixing parts from different meters, recalibration after cleaning is simplified.

This cleaning method is actually acid pickling. First, parts are placed in a mesh basket and soaked for 30 seconds in a stripping solution to loosen grease and corrosion residue. Then they go into an ultrasonically agitated chromic acid tank for two minutes.

After pickling, the basket of parts is dipped briefly into a neutralizing bath to stop acid action; then placed in plain water to remove any remaining dirt particles.

The present equipment is made by the Branson Ultrasonic Corp., Stamford, Conn. Before the Branson system, Broadway Maintenance had a four-tank electrolytic cleaning unit which loosened soils so they could be buffed off by a motor-driven wire brush. This method involved substantial hand labor and there was the repulsive odor of the electrolyte.

Ultrasonic Cleaning

Ultrasonic cleaning's effectiveness is derived from cavitation—the rapid growth and sudden collapse of millions of pressure cells in the acid solution, solvent, or detergent being used. These implosions literally blast dirt and contaminants from any hard surface immersed in the ultrasonic bath.

Cavitation is produced as follows: line voltage (220v, a-c) is transformed by the Sonogen generator into electrical energy at 38,000 cycles per second. A ceramic transducer converts these electrical oscillations into mechanical vibrations of the same frequency—a freqency well above the range of human hearing. This mechanical, high-speed agitation of the liquid creates tiny voids, tremendous energy being released upon their collapse. In effect, cavitation is the equivalent of millions of tiny scrub brushes within the liquid to do the work quickly, efficiently, without harm to the material being cleaned, and often in spots that are inaccessible to water sprays.

The Broadway Maintenance Corp. is a service organization which performs "housekeeping" duty for cities in the Eastern States. This duty includes maintenance of street lights and traffic signals as well as parking meters, with offices and shops in Newark, N. J., Philadelphia, Pittsburgh, Hicksville, N. Y., and Long Island City, N. Y. ◄◄

Concrete streets change a new subdivision from a place of dust and mud (left) to an area of pleasant surroundings and attractive home sites (right).

New assessment policy gives property owners a better break, based on low maintenance cost to the city as . . .

Appleton Returns to Concrete Paving

By **C. A. MITCHELL**
Mayor

Last year, Appleton, Wis., completed paving an entire subdivision with concrete. This 44,000-square-yard job of 10,000 lineal feet marks the first such type residential street paving in Appleton in 20 years—and Appleton's first all-concrete paved subdivision in 40 years. The project consists of six residential streets along with two feeder streets in a newly-annexed subdivision.

This upgrading of residential street work came about as the result of our concern over mounting maintenance costs of other types of streets.

Like many other cities in the country, Appleton was reaching the point where street maintenance and repair were taking an exorbitant slice of our annual budget. We felt that concrete, because of its long life and low maintenance cost, would provide the most economical pavement in the long run.

With this in mind, and in order to give abutting property owners a better break on their share of costs, assessments for pavement were split on a 65% to abutting property owner—35% to city basis. The assessment of 65% means 65% of the cost of all paving items for a standard 33-foot-wide residential street. In addition to the 35% borne by the city, the latter pays for all intersections and additional widths required by traffic. Assessments for the various streets came to only $5.14 per front foot per side, which we feel is a real bargain.

We believe that this 35% participation by the city is justified since the higher type of pavement results in longer life and lower maintenance costs. Maintenance costs are accepted as a city responsibility and anything to reduce those costs will lower annual city expenditures. The large 1959 street paving program and petitions for 1960 paving indicate that affected abutting property owners will pay a moderately reasonable premium for a high type of street improvement when the city offers to share the cost.

Design Data

The design of these new streets incorporates the latest developments in concrete-pavement technology, such as sawed joints and air-entrainment. A granular sub-base was also used, although its main purpose was to give the contractor a firm base to work on after heavy rains. As such, it is not considered a design feature of the pavement since special sub-bases are not normally required for city streets.

The residential streets consist of seven-inch plain concrete on a four-inch crushed limestone sub-base. The two feeder streets are eight-inch plain concrete on a similar sub-base. All streets included integral curbs, with ready-mixed material used for the entire project.

Appleton uses chemically treated aggregates and straight rock salt for ice control. In view of this, we specified a six-bag mix with an air content of 4% to 7%. To make certain that proper air content was maintained at all times, our inspectors made tests almost every hour. These showed that the air content averaged 6%. Because of the poor performance record of some of the crushed limestone in this area when used as concrete aggregate, we requested the ready-mix producers to use only high-quality aggregates, to the exclusion of the limestone, and they gave us excellent cooperation.

A D-6 Caterpillar tractor with hydraulically operated front-end loader handled the rough grading and loaded trucks for removal of excess material, and a Caterpillar grader took care of fine grading and spreading of the crushed stone base. Base compaction was accom-

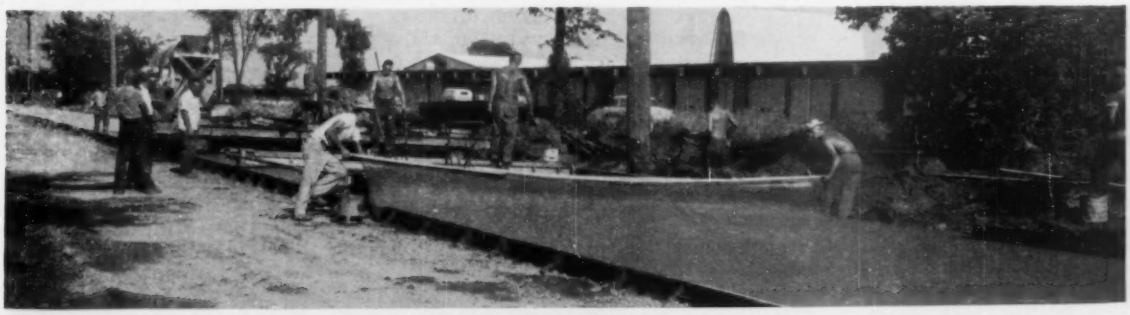
Appleton's 1959 paving program consisted of covering an entire new residential subdivision.

plished by using a wobble-wheel rubber-tired roller with a small steel-wheel roller covering some of the smaller sections. The ready-mix trucks utilized a lane adjacent to the one being paved wherever possible.

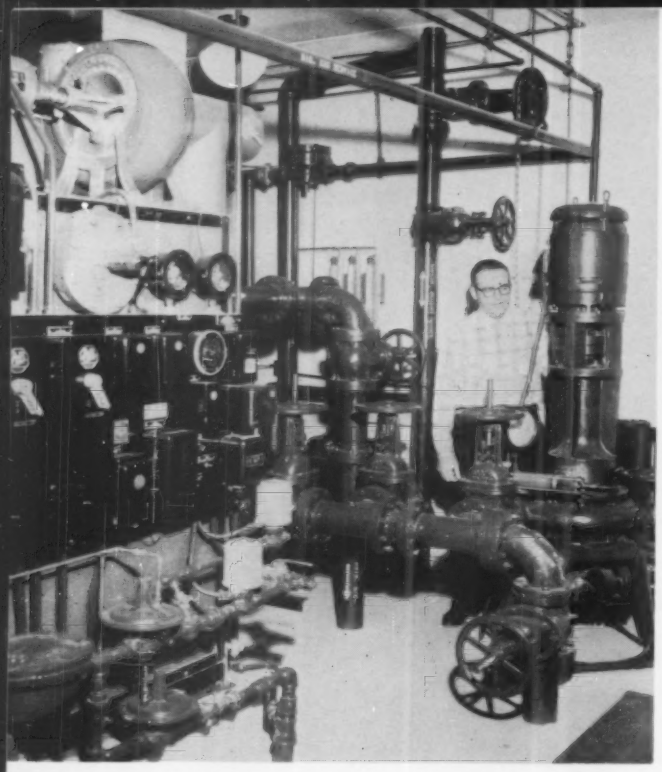
The contractors used hand-pulled vibratory screeds for finishing, followed by hand longitudinal bull float and burlap drag. The final construction step consisted of spraying with white pigmented curing compound. Expansion joints were placed at intersections with sawed contraction joints spaced at 20-foot intervals between intersections. Most of the streets were 33 feet wide, constructed in three lanes of 10½, 12, and 10½ feet. A 37-foot pavement was built in four lanes of 8½, 10, 10, and 8½ feet. Two 40-foot streets were also included.

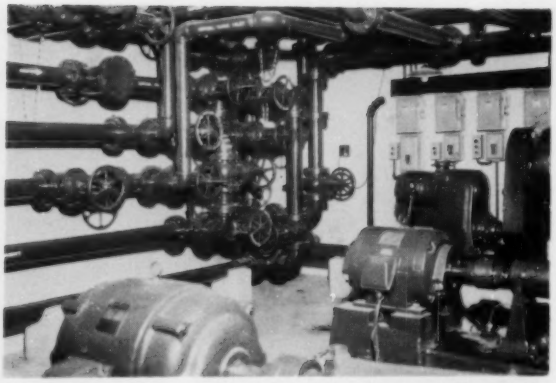
The successful contractors bid both seven-inch and eight-inch pavements at $3.29 per square yard; the integral curb at $0.40 per cubic yard. Contractors on this job were the Wieseler Construction Company and Floyd Acheson, both of Appleton. The total contract price amounted to $194,123.80.

While this marks Appleton's first concrete residential paving job in recent years, this type is nothing new, for it was one of the first cities in the nation to pave its streets with concrete. In 1909 the first mile of concrete street was built in Wayne County, Mich. During the next three years Appleton paved sections of five streets. These streets are very nearly a half-century old and they are still serving traffic. We are confident that our newly paved streets will do as well. In fact, at the time of this writing a contract has been let for the paving of another complete subdivision, in the same manner, to be undertaken some time in 1960. ◄◄



The paving "train" consisted of ready-mix trucks, vibrating screed, manually operated bull floats and a burlap drag.





The basement of the control house contains the sludge pump (rear), two pumps serving the filters, and the bulk of the digester piping.

←

Superintendent Billy Mathews checks over the digester sludge recirculation pump. Boiler and heat exchanger are at the left foreground.

We're Ready for the Next 20 Years

Springfield, Tenn., prepares for the future with 20 miles of new sewers and complete sewage treatment

By **PHILIP BELL, Jr.*** City Engineer

Springfield has just invested slightly over $1,000,000 in better sanitation. This expenditure provides complete sewerage service to the city's 8,800 residents, including many new sewers, five lift stations and a trickling-filter sewage treatment plant. Designed by Howard K. Bell, consulting engineers of Lexington, Ky., the plant is large enough to receive liquid wastes from 12,330 people, Springfield's expected population in 1980.

Our old plant, which treated sewage from only a portion of the city, consisted of a single Imhoff tank and a fixed-nozzle trickling filter constructed in 1928. It was one of the first sewage treatment plants in Tennessee, but it had outlived its usefulness and had been condemned by the State Stream Pollution Control Board.

Of the $1,074,000 spent on the program, $400,000 is invested in plant and pumping facilities and about $428,000 in trunk and connecting sewers. The balance covers paving costs, engineering fees, land costs and contingencies. The city obtained the necessary funds through a $900,000 revenue bond issue and a grant from the U. S. Public Health Service of approximately $180,000. To amortize the 30-year bonds, the city adopted a sewer service charge based on 75% of the water bill.

Although five pump stations are required in the collection system, all sewage enters the plant by gravity flow. The entrance structures consist of an existing manually-cleaned bar screen, a twin-channel grit chamber, Parshall flume, and a single Chicago Pump Company comminutor. A by-pass around the comminutor also contains a manually-cleaned bar screen. A Bailey indicating, recording and totalizing flow meter located in the office and connected to the Parshall flume measures incoming sewage.

Next the sewage flows into the two rectangular primary tanks each 68 feet long by 16 feet wide with a 9-foot average water depth. Equip-

RETENTION AND OVERFLOW RATES

Total Flow gpm	Retention hours	Overflow Rate gal/sq. ft./day
1,600	1.5	1,075
1,200	2.0	806
900	2.66	604
600	4.0	403

*Mr. Bell was first employed by the City of Springfield in 1949 to assist in the installation of a natural gas distribution system. In 1954 the city established the position of City Engineer and appointed Mr. Bell to the post. As City Engineer he is closely associated with the water and sewage treatment plants.

Effluent weirs on the primary (right of the digester) and secondary clarifiers are set at the same elevation. The two units are interconnected to provide automatic recirculation of effluent from the filter.

ment on these as well as the secondary tanks consists of Rex (Chain Belt) sludge collectors and scum skimmers.

Retention and overflow rates for the two units operating in parallel are shown in the accompanying table.

Filtration takes place in two high-rate trickling filters operating in parallel. Each is 85 feet in diameter, contains six feet of filter media, and is equipped with Ralph B. Carter four-arm distributors. The filter design is based on a maximum future pumping rate of 1,600 gpm giving a dosing rate of 8.86 million gallons per acre per day.

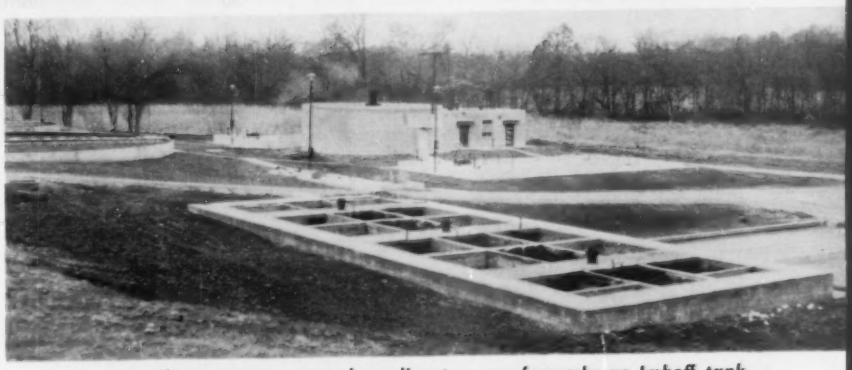
Two Chicago pumps rated at 600 gpm at 14½-foot head and 1,200 gpm at 17-foot head, and powered by 5-hp and 10-hp motors respectively, pump the primary tank effluent to the filters.

Automatic Recirculation

Filter effluent flows by gravity through a junction box and then to the secondary clarifier which is set at the same elevation as the primary clarifier. A cast-iron tee in the line between the junction box and the secondary clarifier allows a portion of the filter effluent to flow back to the primary tank.

The pumps serving the filters draw directly from perforated pipes at the discharge end of the primary tanks. With the primary and secondary tanks set at the same elevation and interconnected by the tee in the line between the filters and the secondary tanks, the amount of recirculation flow varies with the difference between the pump discharge to the filters and the incoming raw sewage. This recirculation system also prevents the pumps from lowering the water level in the primary tanks, eliminating the danger of breaking suction and damaging the pumps.

The two secondary tanks, each 61 feet long by 16 feet wide with a 9¼-foot average water depth, provide two hours detention at a flow of 1060 gpm. Overflow at this rate amounts to 780 gallons per square foot per day.



This open-top, secondary digester was formerly an Imhoff tank. The new primary digester is in the background.

The two filters, operating in parallel, are designed for a future maximum pumping rate of 1,600 gpm.

The plant effluent discharges into Sulphur Fork Creek, a small stream flowing adjacent to the plant.

We practice two-stage digestion, using a new digester as the primary unit and the converted Imhoff tank as the secondary unit. The new digester is 40 feet in diameter with a 23-foot sidewall and a 6⅓-foot-deep conical bottom. It provides 28,800 cubic feet and was designed on the basis of three cubic feet per person for a population of 9,600 persons. Equipment includes a floating cover and a Pearth gas recirculation system.

By converting the existing Imhoff tank into a secondary digester we

picked up an additional 16,000 cubic feet of digester volume.

We heat only the primary unit, using a Pacific Flush Tank gas-fired boiler and heat exchanger. A150-gpm Fairbanks Morse pump circulates the digester contents through the heat exchanger.

Pumping

To pump sludge from the sedimentation tanks to the digester, from one digester to the other, and from the digesters to the sludge-drying beds, we have one Marlow duplex sludge pump with a U. S. Varidrive motor rated at a maximum of 150 gpm at 50-foot head.

Our total sludge-drying area at present amounts to 1.5 square feet per capita for 8,400 people, with space available for additional beds as may be required. The old beds were rebuilt into three new beds each 19½ feet wide by 48½ feet long. Six new beds, each 21 feet wide by 77 feet long, occupy the area partially utilized by the old trickling filter.

Of the five lift stations, four are identical except for capacity, which varies with the requirements of each location. Each contains two Chicago pumps of equal capacity operated by a float control.

The main pump station contains three pumps to lift sewage coming from approximately the eastern half of the city to a gravity line that carries it to the plant. The building is a converted raw-water pumping station located on the bank of Sulphur Fork Creek several hundred feet downstream from our present intake structure.

All equipment is new and consists of a manually cleaned bar screen, small air-compressor, the three pumps and a Healy-Ruff float control for pump operation. Sewage enters the wet well through the bar screen and a small aeration and grit chamber. The purpose of aeration at this point is to keep the lighter organic material in suspension, allowing only the sand and grit to settle out. We remove this grit by means of a clamshell suspended from an overhead electric hoist.

We placed the new treatment plant into service on Labor Day, 1959, and, outside of minor problems normally associated with starting a plant of this type, have had no difficulties. Operation is under the direction of Billy D. Mathews, Superintendent of Sewage Treatment.

Springfield operates under the commission form of government with a mayor and two commissioners. Our sewerage facilities were constructed under the administration of Mayor John R. Long, Jr., now retired. He has been succeeded by the Honorable Travis Price. Mr. Richard Roark, presently Commissioner of Utilities, was also commissioner at the time of construction.

Sewer Work

Sewer work in connection with the new plant, including collector and trunk lines, consisted of laying over 103,000 feet of six-inch- to 12-inch-diameter gravity lines, 3,300 feet of 6-inch force main and 850 feet of four-inch force main. The work also entailed the placement of 1,330 feet of six-inch and two-inch water main and the same amount of four-inch and two-inch gas main. This work was done under two contracts, with a third contract covering the plant and lift stations. ◄◄

Planning Board Tapes Meetings

The Orange County Planning Commission (Santa Ana, Calif.) records public hearings and meetings on tape. Anything that saves time and effort is all to the good in Orange County whose population tripled to 700,000 during the last decade. Such a device is the "Reporter," manufactured by the SoundScriber Corp., North Haven, Conn., and installed by the Planning Commission.

Stenographers no longer are required to take down by shorthand lengthy testimony and debates. The Reporter records continuously for sixteen hours on a single spool of tape.

The tape's special transverse recording pattern preventing tampering gives the Planning Commission a non-voidable permanent record. The tempo for hearings has been stepped up; there is little need to repeat questions. Microphones placed at strategic positions in the meeting room pick up all "floor play."

Prior to the Reporter's installation, the Commission retained original copies of the minutes in bulky ledgers. The Commission now saves tapes and abbreviated microfilmed minutes.

If the Commission prefers to transcribe selected recorded parts—action on agenda items or verbatim testimony referred to the Board of Supervisors — the recorder is also equipped to do double duty as a transcriber.

This method furthers good public relations. For instance, should an indignant citizen charge that "You didn't read my letter or support my group's stand at last week's meeting," that portion of the minutes can be played back at once. ◄◄

Let's Look at the Records

Lancaster Intelligencer Journal Photo

Tons of obsolete records in Lancaster, Pa., subbed for coal after a Remington Rand management survey for the city. The ladies are Miss Connie Dozier, Business Services Department, and Mrs. Ruth Jordan, a city employee.

We Put One Reservoir Inside the Other

Daly City, Calif., breaks precedent with the novel design of its water storage tank

By **W. E. CHAPMAN**
City Engineer

Daly City, Calif., has this year completed a prestressed concrete reservoir which, to my knowledge, is one of the few water tanks in this country, if not the only one, with an additional tank within its interior.

During the design of this Preload tank, the engineers sought to find a method which would allow the cleaning of the larger tank without taking the reservoir off the line.

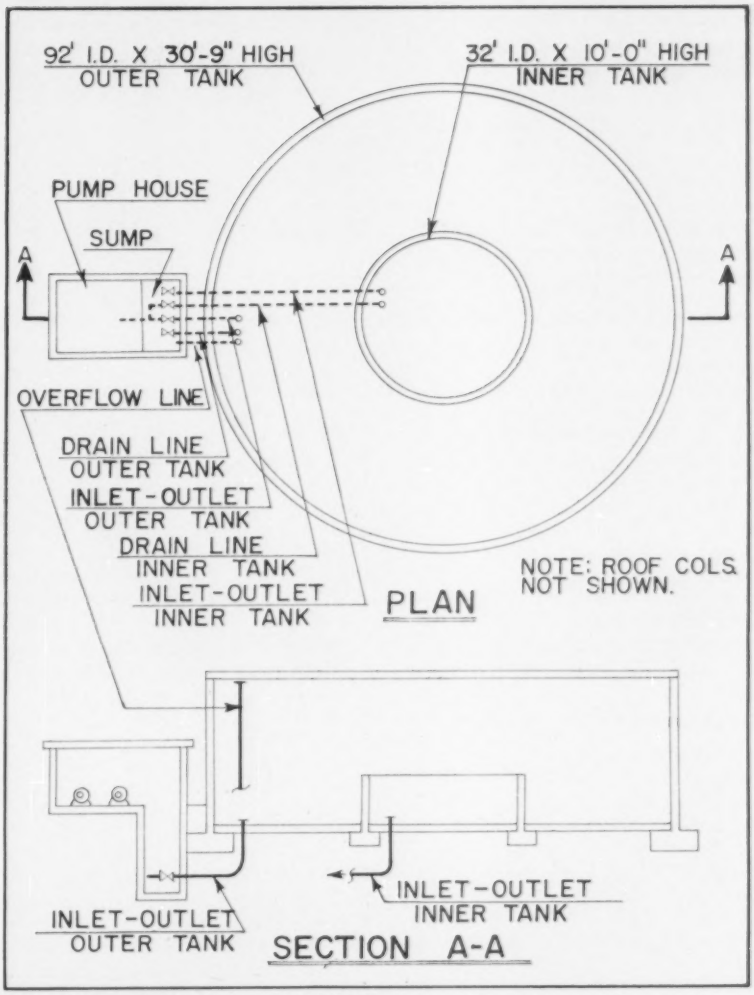
Alternative Plans

One such possibility, which was eventually dropped, was to provide a vertical wall across the diameter of the tank, dividing it into two equal sections. This idea was abandoned after a cursory check revealed severe bending stresses caused by the filled side of the prestressed tank. It became clear that the usual advantageous radial stresses or "hoop tensions" present in a normal prestressed tank were lost by this method. Furthermore, the dividing wall itself would be difficult to seal since the prestressed wall moves in and out in a radial direction as the tank fills and empties.

Another method which was subsequently dropped was the possibility of building a two-story tank. Either tank could then be left in operation or cleaned as desired by the operator. Cost factors eliminated this.

Still another way, and one which is commonly practiced in this country, was to build two separate and equally sized tanks side-by-side. However, this alternative increased the amount of land necessary for the tank site and it further increased the cost since one large tank would be cheaper than two tanks having the same combined capacity.

The final solution, as shown in the sketch, was to provide a smaller reinforced tank within the tank itself. It then had the advantage of concealment, avoidance of a separate roof, and required no additional land on a site which was already crowded. The interior tank was structurally designed to take loads from either side. The two tanks were valved in such a manner that under normal operations, both would have identical water levels. During cleaning operations, valves are located to allow the main tank to be cleaned while the smaller interior tank remains in operation. The same is true when the smaller tank is cleaned, leaving the remaining portion of the larger tank in operation. Naturally, during the cleaning operations, neither tank could be filled higher than the height of the interior tank.



The tank within a tank was designed to this general arrangement.

The interior tank has a capacity of 50,000 gallons, while that of the larger main tank is 1,500,000 gallons. The final price for the tank within a tank was $99,700. The cost of the interior tank alone, which is included in the final price, was $3,500. The cost of two individual tanks, having the same combined capacity, was estimated at $137,000.

This then reveals the essence of what we believe is an unusual construction and operational procedure in water works. ◄◄

Pasadena's Street Lights Fit Each Area

There are 25 areas with the new mercury vapor lighting on concrete, metal or wood poles to average $100,000 in each area

By A. W. CARTMELL, Ass't. Chief Eng.
Pasadena Municipal Light & Power Dept.

A. Twin-arm Marbelite standards carrying 21,000-lumen Line Material Controlite Senior luminaires with Ray-Lite globes equipped with 21,000-lumen mercury vapor lamps.

B. Line Material Suburbanaire with 7,000-lumen lamp on 16-foot Joslyn arm, 25 feet above street grade.

The first mercury vapor street lighting installation in Pasadena, Calif., was energized in 1949. It consisted of 124 General Electric 21,000-lumen lamps on Union Metal standards, located on Colorado Boulevard (U. S. Highway 66), the main street of Pasadena. The standards were hot-dipped galvanized to eliminate painting. After nearly eleven years of operation, they are still in very good condition and there is no indication that painting will be required in the future.

This first installation replaced a five-light cluster system and the difference was striking. Before the end of 1951, mercury vapor lamps replaced two other systems on Colorado Boulevard, making it a great white way from the Arroyo Seco (near the west city limits) to the east city line, four miles. This was the beginning of mercury-vapor street lighting in Pasadena.

A subdivision ordinance passed by the Board of City Directors in August 1941 made it mandatory that the subdivider provide "an approved type of ornamental street lighting system" for each new tract. Several hundred poles have been installed since then to meet this requirement in residential areas.

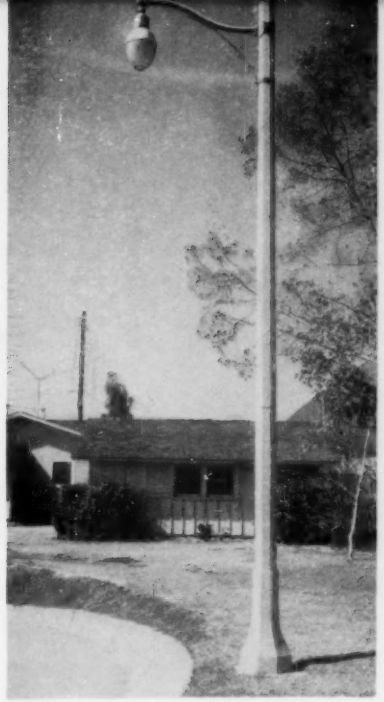
"An approved type of ornamental street-lighting system" in a residential area can use a pole of one of four types: steel (galvanized), Marbelite, concrete, or aluminum. The luminaire must be of the pendant type, suitable for 6.6 amp series operation, equipped with a series 2,500-lumen lamp and have a minimum mounting height of 20 feet. In most residential areas 200-foot spacing will meet the requirement if the street grade is slight, the street is straight and the intersections are properly lighted.

Approximately 80% of the standards installed since the ordinance went into effect are fed through an underground system. The Street Light Engineering Division will, as a service to the tract owner, prepare the final plans and specifications for the street-lighting system if requested to do so.

The conduits are usually placed just back of the curb deep enough to insure that they will not be disturbed if new driveways are installed. Thirty inches of cover must be maintained for street crossings.

Underground systems usually have installed Marbelite or Union Metal poles (pictures C and D). The trend at present is towards the Marbelite design. Luminaires have been one of the following: General Electric 79 or 101; Line Material 3A or Westinghouse AK10.

A new trend may be developing



C. Marbelite standard and G. E. luminaire for underground system.

D. Union Metal galvanized standard with G. E. luminaire.

E. Joslyn luminaire on a Marbelite standard with overhead feed.

F. Combination trolley pole and street light modified after removal of trolley taper tube pole; luminaire is General Electric 21,000-lumen.

G. Line Material PTL luminaire with 175-watt 7,000-lumen mercury lamp on an old shaft left in place; there are 140 such units.

for residential street lighting in the City of Pasadena. On December 18, 1959, five mercury-vapor street lights were energized in a small residential tract. The standards were Marbelite using a Joslyn Type luminaire and a 100-watt mercury-vapor lamp. All five of the standards were fed aerially and one is shown in Picture E.

The problem of having adequately lighted streets for new tracts is well taken care of under the provision in the subdivision ordinance. The big remaining problem is how to replace existing installations which are obsolete and inadequate. Although some replacements were made in 1949 as indicated at the beginning of this article, the formal program did not begin until March 1956 when the citizens voted eleven million dollars for city improvements. $854,000 of it was allocated for street light improvements.

Nearly 2,000 mercury vapor luminaires have been installed in the city since 1949. Nearly all are pendant type, using 21,000-lumen lamps mounted at 30 feet. Many of these installations were made in conjunction with other parts of the improvement plan, such as street widening and in several instances new streets were cut through old areas to give better traffic flow. One of the streets, Sierra Madre Boulevard, had a street-car right-of-way down through the center which the city took over. The right-of-way was improved and landscaped and mercury vapor street lighting installed. A portion of the completed installation can be seen in Picture A.

For many of the projects which indicated through cost analysis that the old system should be replaced with an entirely new system, standards similar to those used on Sierra Madre Boulevard were specified. In some, poles of Union Metal design with General Electric luminaires with 21,000-lumen lamps were employed.

Older Systems

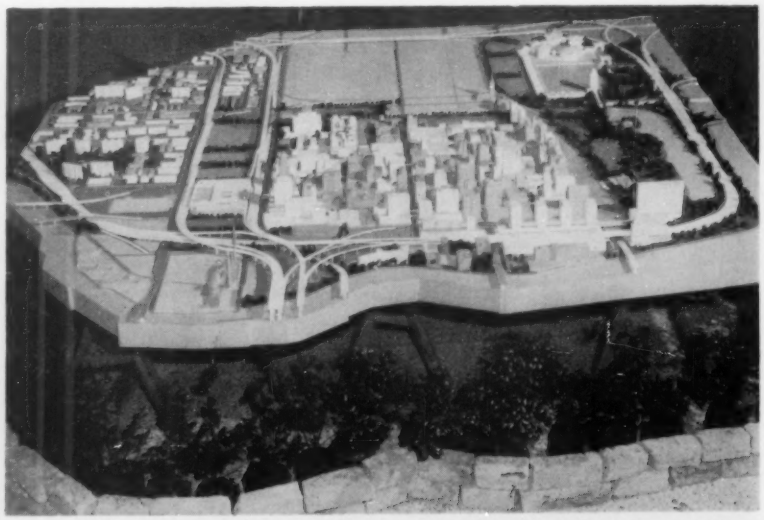
In analyzing many of the projects it was found that many parts of the older systems could be used to advantage, such as cables, bases, and in some cases even the standards. This of course resulted in several different types of adaptations and in a few cases such as the one shown in Picture F, new parts were designed. The standard shown in this picture is that of an old combination street light and trolley pole. Originally an arm mounted approximately 2/3 of the way up the standard held two street light globes with two 2,500-lumen lamps. These were removed and a special arm was designed to fill in some of the space at the top of the pole and still allow a 30-foot mounting height.

Many single family dwellings and large estates are being replaced by large apartments in Pasadena. This of course increases the requirement for street lighting in the residential area. To study the requirements, a committee was formed during 1959, of members from the following departments: City Manager's, Engineering—Street, Police Department, Park Department, Planning Director, and the Light and Power Department. The General Manager and Chief Engineer of the Light and Power Department is the chairman of the committee. The primary function of this committee is to determine which areas needed increased lighting and to set up a recommended priority list in order of need. Several trial installations in areas fed from wooden poles on the street were made for the study. The installation shown in Picture B was the one which is recommended for use in similar areas. This fixture replaced the old familiar gooseneck. The committee also recommended that the city be divided into areas which could be changed from the old style of lighting to the new at a cost of approximately $100,000 for each area. It was determined that the city could be divided into approximately 25 such areas and that to modernize all of the street lighting would cost $2,500,000. Detailed cost estimates for five areas were made with the committee recommending the priority for each area. It is the intention to keep the committee functioning so that as needs change the areas and priority can be changed. The speed at which the plan progresses will of course be determined by the availability of money for the project. ◄◄

Miami Downtown Plan a Traffic Strainer?

Several hundred civic-minded citizens at the annual dinner of the Miami-Dade County Chamber of Commerce were reported to be amazed to see a downtown area of fantastic beauty, complete with expressways, and Flagler Street remade into a landscaped mall closed to all but emergency traffic and the delivery trucks which operate in the pre-dawn hours.

It is a 12-foot model called the Magic City Center plan. It covers the area from Biscayne Bay to NW 5th Avenue and from the Miami River north to 13th Street. Paul C. Watt, Metro planning director; Vincent E. Grimm, Miami traffic engineer; George H. Kunde, his Metro counterpart, and members of their staffs cooperated on the plan. Roscoe Jones, who is the chief project planner for Metro, directed the construction of the model of the downtown area. ◄◄



Miami, 1985, as designed by the Miami and Metropolitan Dade County planning departments, unveiled at a Chamber of Commerce get-together.

you know this face

IF YOU ARE ONE OF . . .

105,000,000*

PARK-O-METERS are serving the convenience of motorists and producing thousands of dollars of revenue in some 1450 cities on every continent of the world

*Rounded total population of cities in which Park-O-Meters are installed.

There is a Park-O-Meter model to meet every Specification for on-street or off-street installation.

- Accepts all coins, pennies, nickels, dimes, quarters or tokens through a single coin-slot.
- Adjustable for any time limit.
- Available in either completely automatic or manually operated . . . user energized . . . models.
- Proved through a quarter-century of operation in every climate.

ASK FOR DEMONSTRATION OR TRIAL INSTALLATION

Magee-Hale
PARK-O-METER COMPANY
OKLAHOMA CITY, OKLAHOMA
Factories in U.S.A., CANADA, ENGLAND

Parking Enforcement Officer Helen Barton, with three-wheel West Coaster, and Parking Meter Serviceman Joe Bruno, with two-wheel coin collection cart.

How Parking Is Done in Pittsburg, Calif.

By **E. C. MARRINER**
City Manager

The City of Pittsburg, Calif., has an off-street parking master plan. A parking district has been established and bonds have been sold to finance the four existing lots. The city now caintains 155 free three-hour off-street parking spaces in four downtown self-park lots. In addition, four downtown business concerns provide 25,000 square feet of free off-street parking for their respective customers. Other shopping areas provide their own off-street parking.

Present parking bonds are amortized at 4% annually for a period of 25 years. Revenue to retire the loan comes from contributions from on-street parking meters as well as from an assessment on benefited properties. Pittsburg has 530 Duncan Miller manual parking meters, 71 of them for diagonal parking and the remainder for parallel, on eight downtown streets. Of these single car meters, 517 have a two-hour time limit; ten have a time limit of 24 minutes; and three allow 12 minutes. The rate for these meters is 12 minutes for one cent with 13 meters accepting pennies only and 517 taking nickels or pennies. "Meter-feeding" in excess of time limits is illegal.

The Pittsburg Police Department is responsible for enforcement, collection and maintenance of the parking meters. A woman enforcement officer, known as an "Information Officer," makes the rounds of the metered stalls each 1½ hours (9:00 A.M. to 6:00 P.M., except Sundays and holidays). She uses a three-wheel West-Coaster motor scooter, which is economical, durable, and powerful. The scooter has required no repairs during two years of operation.

The parking enforcement officer also types reports and compiles accident report statistics for the Police Department. Her pay range is $322 to $392 per month, equivalent to that of a bookkeeping machine operator.

Collections are made twice a week by the parking meter serviceman, who is also a member of the Police Department. His pay range is $392 to $478, the same as that of heavy equipment operator, tree trimmer, or water meter serviceman. The parking meter serviceman makes a daily inspection for defective meters and makes necessary repairs. A locked two-wheel metal cart, with coin receiving spout, is used to gather the coins from each parking meter.

The collection cart is opened and the contents counted by coin counter, without charge, at the Crocker-Anglo National Bank in Pittsburg, where the parking meter receipts are deposited. These funds are used to retire the bonds for off-street parking facilities.

Citations

Citations for over-time parking include envelopes, pre-addressed to the Pittsburg Judicial Court and postage pre-paid, with instructions to send $1 or appear in court in person within one week. If payment is not received within one week, the penalty is increased to $3, and the notice is sent out by the court.

A court warrant for arrest is ordered on failure to respond within the maximum time allowed. Revenue from parking meter violations is used in financing street repairs.

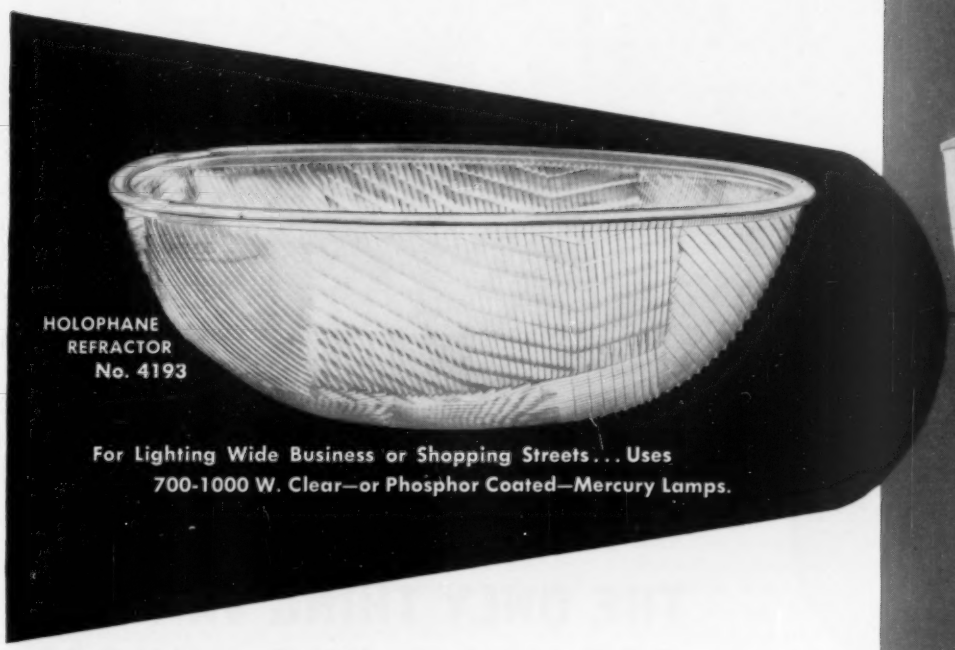
Violators of the off-street parking lot 3-hour time limit between 9 A.M. and 6 P.M. receive regular traffic citations with a fine of $3. Parking violation receipts are processed by the Treasurer of Contra Costa County and forwarded to the City of Pittsburg minus court expenses. ◄◄

HOLOPHANE Develops

in cooperation with Line Material Engineers

The First Refractor of its Kind

Unprecedented in Size...in Performance



For Lighting Wide Business or Shopping Streets... Uses
700-1000 W. Clear—or Phosphor Coated—Mercury Lamps.

Holophane Prismatic Control Assures Higher Lighting Efficiency...

Line Material Luminaires Provide Modern Design

The trend to larger mercury lamps with greater lumen output has brought a critical need for more precise control of street lighting distribution . . . Holophane engineers, working with Line Material designers, have met this demand with the development of the new 4193 Refractor. Its unique "custom-tailored" prismatic construction provides these advantages: more useful light on the roadway, wide spread distribution, greater effective visibility distance, finest illumination per citizens' dollar . . . Line Material luminaires bring a new, modern look to the street scene...

DISTRIBUTION—IES Type III with clear lamps—IES Type IV with coated lamps... Low angle candlepower emission results in minimized veiling glare and maximum seeing comfort.

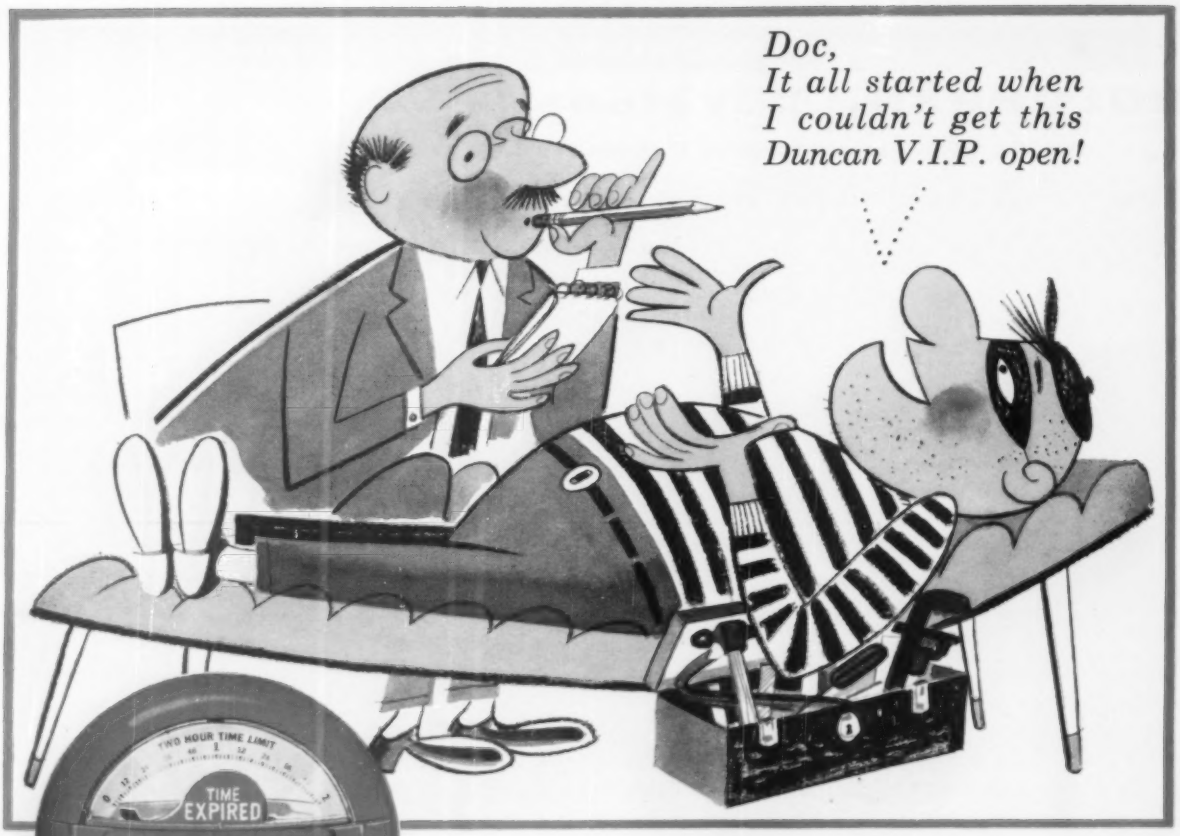
Write for Engineering Data

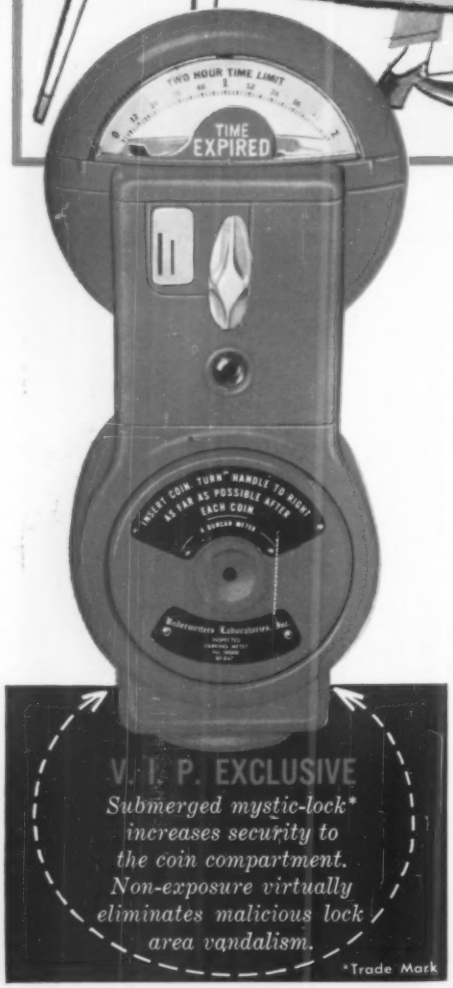
HOLOPHANE COMPANY, INC.

Lighting Authorities Since 1898

STREET LIGHTING DEPT., NEWARK, OHIO

THE HOLOPHANE CO., LTD., 418 KIPLING AVE. SO., TORONTO 18, ONT.




TWO HOUR TIME LIMIT
TIME EXPIRED
INSERT COIN TURN HANDLE TO RIGHT AS FAR AS POSSIBLE AFTER EACH COIN
V. I. P. EXCLUSIVE
Submerged mystic-lock* increases security to the coin compartment. Non-exposure virtually eliminates malicious lock area vandalism.
*Trade Mark

THE ONLY THING VANDALS GET FROM THE DUNCAN V.I.P.* IS A COMPLEX!

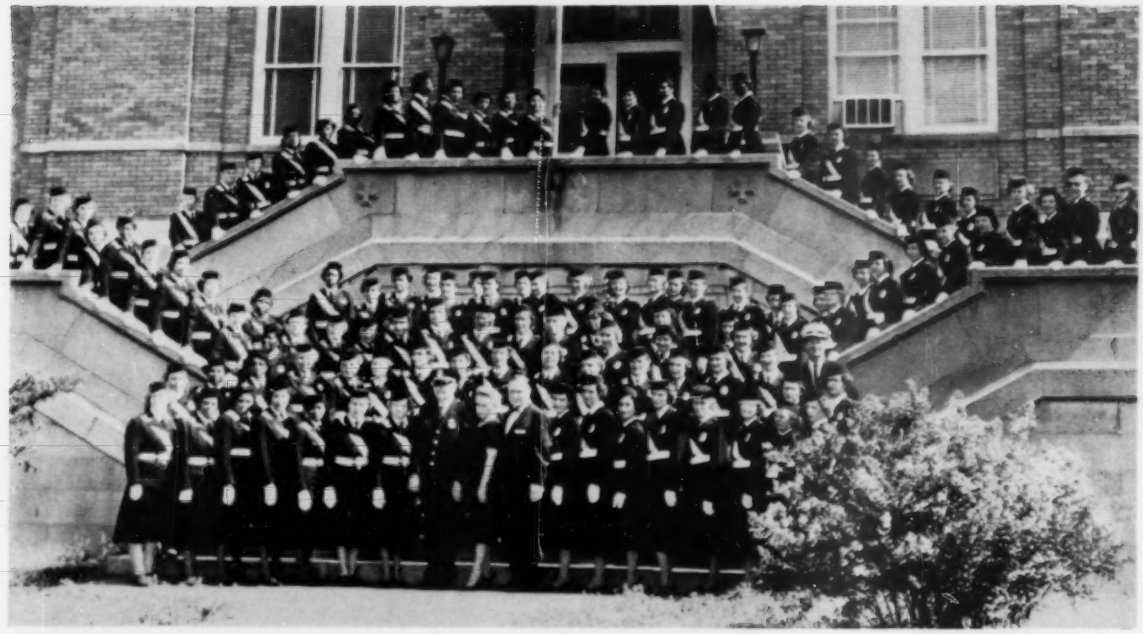
Outstanding results obtained from installations in highly vandalized areas prove that only the Duncan V.I.P. meter offers genuine security to meter revenue.

Patented sealed coin box system continues Duncan's maximum protection to collected revenue from meter location to city collector office.

*Vault Insured Protection against vandalism

TAMPER-PROOF BOLTED DOOR
BURGLAR-RESISTIVE HOUSING
PATENTED SEALED COIN BOX

DUNCAN PARKING METER
Division of Motor Products Corporation
835 NO. WOOD STREET • CHICAGO 22, ILLINOIS



Mothers' School Patrol of Nashville, Tenn.

Nashville's PTA Crossing Patrols

In the nine years the Mothers' School Patrol has been in operation here in Nashville, there have been no fatalities and only three school children slightly injured.

The members of this organization must have children in school and belong to the Parent-Teachers Association. They are selected from the recommendations of the school principals and the presidents of the various PTA Councils.

We have 107 patrol mothers at a salary of $105 per month and five supervisors at $190 per month, all paid for ten months of the year. The city furnishes uniforms, badges and equipment.

Before the organization of the Patrol, traffic officers were assigned to some of the most heavily traveled crossings but were subject to call elsewhere and often had to leave to perform other emergency duties, leaving their particular crossings unprotected until their return.

The annual accident and death records of children injured or killed at crossings while going to and from school ranged from two to five killed and larger numbers injured.

Information on the training program is available to any city requesting it.

BEN WEST
Mayor
Nashville, Tenn.

Attacking Decatur's Bad Accident Record

Decatur, Ill., reported 13 fatal accidents within its limits in 1958. What this amounted to was:

Fatal Accidents	*Decatur*	*National Average*
per 100,000 population	16.5	7.4
per 10,000 vehicles	3.1	1.6

The year 1959 had 22 more accidents (1,402), 9 people killed, and 34 more injuries (470).

At the outset of concerted corrective action beginning in January 1960, city officials decided that the answer would be in planning, organizing, staffing and co-ordinating the efforts of all municipal agencies toward the long-run betterment of the traffic accident record.

For the first time since 1941, Decatur did a wholesale revision of its zoning ordinance, requiring off-street parking in all districts. The new ordinance adopted on February 8 makes provision for planned industrial parks, special shopping center districts and, the gradual elimination of non-conforming buildings.

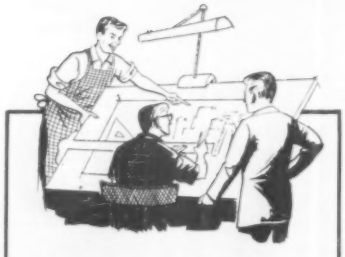
A new set of subdivision regulations provides for modern, safe, design standards not only as to layout but also with regard to physical improvements that will be required. We have concluded that there is no point in remedying old trouble spots while creating new ones just as rapidly by outdated or poorly enforced subdivision regulations.

A term many of us hear a lot about these days in municipal administration is "urban renewal." In this field, we have a great opportunity to remedy some of the traffic ills in the worst parts of our cities. We in Decatur are making traffic and roadway planning an

(Continued on page 125)

At Interstate Freeway Interchange . . .

Long span, double-rigid, Millerbernd standards help assure smooth after-dark traffic flow



We invite consultation

Our design and manufacturing facilities can help you with your special problems. Millerbernd experience covers the field . . . highway and street lighting; overhead sign supports; floodlight towers; parking lot, driveway and walkway lighting. Write or call.

These long-span standards light both edges of the roadway, make freeway exits, entrances and direction signs stand out clearly. Motorists can see the whole of the interchange at a safe distance, permitting turn-offs without dangerous hesitation.

Millerbernd long span design is doubly rigid, holds luminaires rock steady . . . and it's handsome, too. Curved steel tube brace eliminates unsightly tie-rods. Long-span arms are available in lengths from 10 to 15 feet.

Get all the facts on Millerbernd standards for highway and street lighting. Ask about Millerbernd Octa-Tube overhead sign supports, too. ***Write for catalog.***

Millerbernd

MANUFACTURING CO.
WINSTED 1, MINNESOTA

(Continued from page 123)

integral part of our urban renewal thinking and action. In one urban renewal area we held up a major street improvement project when we found out that the original planned location of this roadway would create real problems in itself when re-developing the area.

A recent street widening, resurfacing and relighting project near downtown Decatur is a real aid to traffic movement. However, with its completion all the street parking spaces in the area were eliminated and in less than a year the number of business establishments has been reduced from 67 to 47. Very few cities can stand this sort of loss of their property tax and sales tax base. We all accept the fact that traffic improvements must go forward but within the framework of the most broad sort of planning.

What I have really been saying is that we in Decatur have begun to think of traffic problems and traffic accidents as part of the overall transportation problem, part of overall city planning. Every new parking space, every block of wider street and each improved intersection affects the bus company and such diverse elements as taxi rates, zoning and urban redevelopment. All are tied together and affect the safe movement of people.

Almost one-half of the time of officers in the Traffic Division of the Police Department had been spent on sign painting, street marking and collecting parking fines. Very little time was spent on investigating accidents and selective enforcement.

All maintenance duties have been shifted to the Public Works Department, traffic-fine collection to the Finance Department, and one-man patrols started. Our police officers are now working toward reducing traffic accidents. The first month after this change, the enforcement index jumped from less than 10 to 50. Moving traffic arrests increased four times over what they were a year ago and the number of drunk-driving arrests doubled.

Every police officer has had to take a three-week course in everything from report writing to courtroom appearance. All of our command officers have completed an advanced, ten-week (once a week) course to better enable them to direct other officers. One of our officers took the Northwestern University three-week advanced traffic course. Another officer went to the accident investigation school at Purdue.

Meanwhile, our Public Works people were gathering facts on which to base their attack on Decatur's bad accident record. Detailed surveys of need and estimates of cost have been completed on:

1. Street name signs,
2. All traffic signs and markers,
3. All traffic control devices, and
4. Re-conditioning and widening all important streets besides those on the major street plan.

Another major project completed this spring is a street-lighting survey of the entire community. It includes details to bring the lighting of every street in the city up to those standards recommended by the Illuminating Engineering Society.

As we have upgraded our enforcement agency, we are also planning to re-enforce our engineering staff. We recognize there is a definite place for engineering consultants:

To provide professional service which our own employees cannot provide in the time needed,
To add prestige that will help sell an idea or project to the public and bond buyers,
To present a fresh or new approach to a problem.

We also recognize that consultants are expensive, can upset employee morale and public relations, and seldom have a background in local matters.

Traffic consultants can assist but the problems will be with us for many years in the future and the engineering decisions we make each day on many types of projects all have an effect on the total traffic picture. We feel sure that another way to attack this problem is to hold and strengthen our engineering staff.

Unfortunately all of these things cost money and the citizens of most communities in Illinois today are refusing to vote themselves any more taxes by approving bond issues or higher operating levies.

We, on the administrative side of local government, are faced with the tasks of finding new means of financing necessary traffic improvements. The traditional means are not adequate today and will not be in the future. Certainly, all the units of government—the state, county, township and city—must work together more cooperatively than they ever have in the past to meet these needs and solve the major problem of financing.

The time has come to tell the citizens of each community the facts of traffic accidents and congestion—to face your own traffic accident record as we have.

Two weeks ago the Mayor of Decatur called a safety meeting with outstanding speakers including the Governor. More than 300 community leaders attended these afternoon and evening sessions. Decatur is awake to its problem and will improve its safety record.

JOHN E. DEVER
City Manager

Pointing the Way

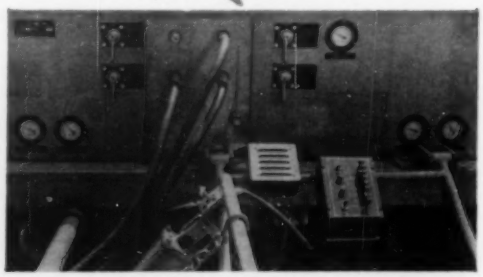
Vernon McNeal, of the Iowa State Highway Commission sign shop (at Ames), made these signs with a Prismo Mono-Printer.

PAINT SPRAYS IN FREEZING TEMPERATURES!

New Wald Paintemp Heater

Insures Uniform Flow in Temperatures as low as 30°

Now you can add as much as two months to either end of your striping season. From the USA to France to the cold pavements of Iceland, Wald's automatic Paintemp Heater is guaranteeing uniform application and film thickness, regardless of temperature. *Most important* . . . drying time is reduced, production is increased. And one setting of the Paintemp Heater's controls regulates the viscosity for all day. Tests show that when "the heat's on" spraying takes less power, less pressure, reduces overspray, saves wear and tear on equipment. Through the use of this unique device, most traffic paints now in use can be utilized with increased results and efficiency. But a word of warning . . . it cannot be considered a cure for bad paint!



Once again Wald Industries demonstrates its leadership in the manufacture and improvement of pavement marking equipment.

Wald Paintemp Heater Officially Adopted by:

OHIO	PENNSYLVANIA
VIRGINIA	NORTH CAROLINA
DELAWARE	TEXAS

PENNSYLVANIA TURNPIKE
ALLEGHENY COUNTY, PA.
DAYTON, OHIO
FRANCE ICELAND

WALD

PAINTEMP HEATER

Pat. Pend.

WALD INDUSTRIES, INC.

Huntingdon, Pennsylvania

Keeping 'Em Ticking On Niles' Streets

Sergeant Elwood Hemphill of the Niles, Mich., Police Department repairs a four-hour parking meter.

Parking meters are clocks and clocks are no good unless they keep running. So most cities employ one or more meter maintenance men. Most of the men have attended training schools run by the companies which manufacture and sell parking meters.

Such a man is Sergeant Elwood Hemphill of the Niles, Mich., Police Department who repairs the city's 768 Dual parking meters. Last fiscal year the city collected $48,860.

The meters range from 12-minute meters, meant to prevent congestion in crowded areas and yet accommodate the motorist who has a quick stop to make, to 12-hour meters, installed in lots for the all-day parker.

The sergeant's job is to keep these meters working. Dirt is often the culprit that forces a meter to the sidelines. Sgt. Hemphill says that Chlorothene, a chlorinated solvent manufactured by the Dow Chemical Co., Midland, Mich., is the best he has tried. With a rag or brush, he cleans non-moving metal surfaces to a nice glossy look.

Sgt. Hemphill also oversees weekly collection of money from the meters and winds each meter once a week. On the weekly winding tour, he inspects each meter for possible malfunction. Those in need of repair, ten to 15 each week, are replaced from the stock of spares, about 70 on hand, and returned to the shop. After cleaning and repairing they join the bank of spares. ◄◄

Traffic Control in Moscow*

Traffic in Moscow, as in every other Soviet city, is handled by the Municipal Department for Regulating Street Traffic, called ORUD for short. It is responsible for licensing drivers, setting and enforcing traffic rules, and investigating accidents.

On driving in the Soviet Union you keep to the right, pass on the left. Horn blowing is banned. Traffic signs are based on internationally recognized symbols used in European countries. Moscow's traffic lights are the three standard colors: red on bottom, then yellow and green on top.

Educational Work

Much of ORUD's work is educational, to reduce driving hazards. Most through-trains on Soviet railroads broadcast music to passengers en route but, when a train approaches a metropolitan centre, talks on local traffic regulations replace the music.

To obtain a driving permit, the applicant must be at least 18 years of age and pass a thorough medical examination. This is not a casual eye test but goes into reflexes and reactions as well. In addition to being able to drive competently, the applicant also must prove that he knows how to handle minor mechanical troubles, change a tire, adjust brakes, fix headlights or get a stalled car into operation.

Statistics show that novices are the greatest hazard both to drivers and pedestrians. Drivers with less than a year's experience must display a special sign both in front and rear of the vehicle they drive. It features a yellow background with a heavy black exclamation mark that warns other drivers and pedestrians to exercise good care—a novice is at the wheel.

When a driving permit is first issued, it is accompanied by a green coupon which is retained as long as the driver commits no traffic violation. After the first offense, it may be replaced with a yellow coupon. A more serious violation or accident would bring about the drawing of a red coupon. Upon its loss, the driver's license is suspended for a six-month period.

Moscow is more than 800 years old and, until recently, many of its streets were little more than narrow, winding lanes. Now most of the major thoroughfares are very wide. But street reconstruction in an old city is a long, slow process while traffic keeps on increasing.

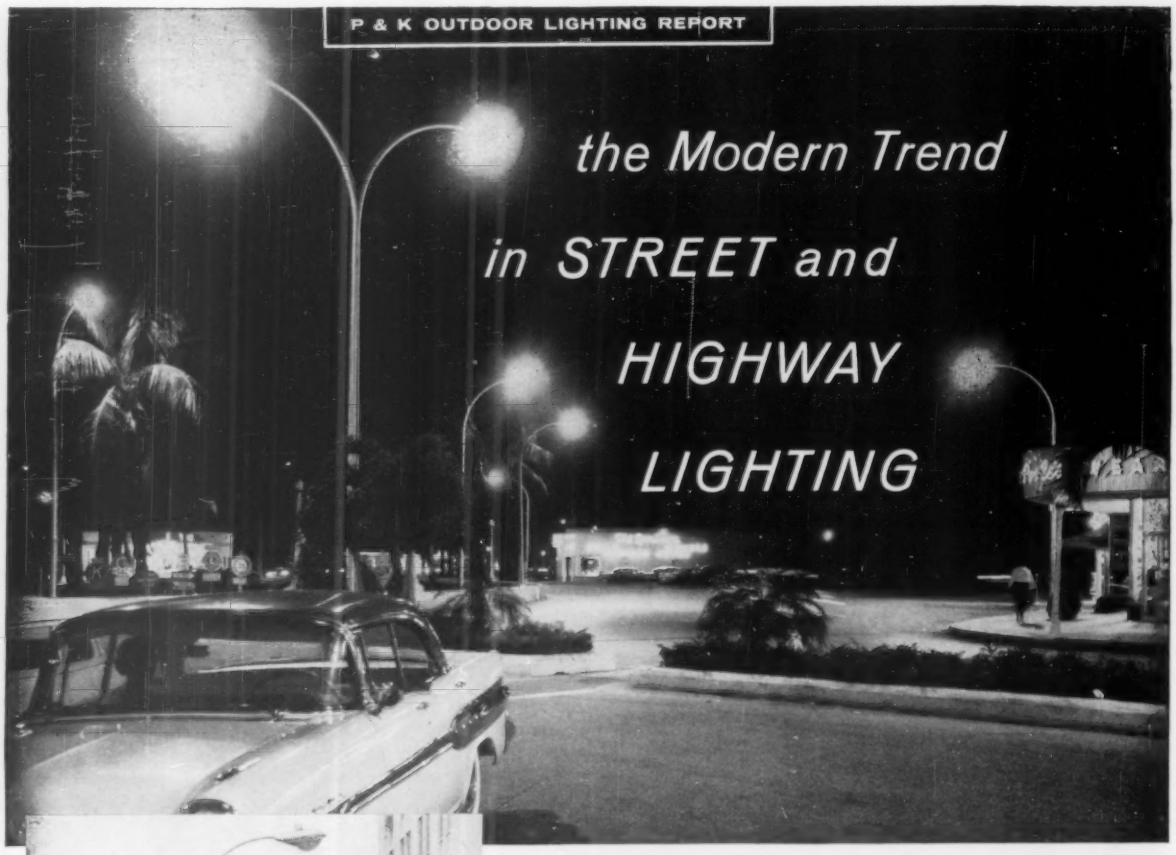
A 60-mile highway, forming a ring around the city's outskirts, is now under construction and this is expected to help ease the traffic situation and particularly remove much truck traffic. All roads converging radially on Moscow will cross this new speedway.

The new road will have two ribbons of concrete each 23 feet wide, separated by a 13-foot parkway in the center. There will be no traffic lights and the speed limit will be 75 miles an hour.

YURI PAVLOV

* Condensed from an article in Local Government for January 1960, published by the Federation of All-India Local Authorities, Masulipatam, India.

P & K OUTDOOR LIGHTING REPORT



TOP PHOTO: Traffic circle illumination— West Miami Springs, Florida

LOWER PHOTO: New White Way—White Plains, New York

P&K ALL ALUMINUM

LIGHTING STANDARDS & DAVITS

More than just modern-looking, P&K street lighting standards are modern in total concept. Compare our use of functional design . . . no scrolls, no tie rods . . . instead a strong aluminum tapered elliptical arm — one piece for minimum inventory, fastest assembly and installation. Compare the P&K davit, truly the ultimate in functional design with a style as fresh as tomorrow. What's more, P&K is modern in the materials of construction: to the inherent strength and light weight of aluminum, P&K has engineered designs to meet every load requirement—from the conventional incandescent and mercury vapor luminaires to the new, larger and heavier models in both mercury vapor and fluorescent. And above all, P&K is modern in its elimination of maintenance problems. No painting required — ever. Even the salty sea air offers no hazard to the good looks of P&K standards.

For more information, reserve your copy of the new Aluminum Lighting Standards catalog now. Ask for our helpful brochures ALS and BR-11.

P&K PFAFF & KENDALL 84 FOUNDRY ST., NEWARK 5, N. J.

BRANCH SALES OFFICES: MIAMI, FLORIDA; BURLINGAME, CALIFORNIA
IN CANADA: POWERLITE DEVICES, LTD., TORONTO, MONTREAL, VANCOUVER
EXPORT REPRESENTATIVE: PHILIPS EXPORT CO., NEW YORK, N. Y.

The brightness of the 22nd Street Bridge after relighting (above) contrasts with the previous illumination (below). In relighting 20,000-lumen mercury vapor Westinghouse luminaires on Union Metal aluminum standards were used.

Two Rivers Relights On a Massive Scale

By DONALD F. LAUBENSTEIN
Director of Utilities

The Water and Light Department of the City of Two Rivers, Wis. (population 13,000), has been engaged in a continuous street-lighting modernization program since 1953. At that time there were complaints of inadequate lighting in various parts of the city. As the cause was poorly designed lighting fixtures, we decided to replace them all, over a four-year period.

Program Shapes Up

The first problem was to select an efficient fixture. To solve it, we installed luminaires furnished by various manufacturers at several intersections. A group, consisting of three city councilmen, the city manager, and the director of utilities, judged the installations. The point which they determined was simply which intersection had the best overall lighting. The cost of the fixture, engineering performance data, construction details and manufacturer of the fixture at each intersection were known only by the Director of Utilities and was not presented until after each person had expressed his preference. We used this approach since the lights themselves were used by the city's people who are more interested in the overall effect than in how many footcandles of illumination a fixture will give at a certain spot on the street. Westinghouse Type AK-10 luminaire was selected as the standard and the Line Material Spherolite selected as an alternate should there be procurement difficulties. Incidentally, the cost of a modern fixture at that time was only about $12 more than the old fixtures which we had been using.

Between 1953 and 1957, all residential lighting fixtures were replaced with 4,000-lumen incandescent fixtures or 20,000-lumen mercury vapor fixtures. In addition, all old incandescent ornamental lights and standards on the city's main street and on bridges were replaced with Westinghouse OV-20 luminaires, utilizing 20,000-lumen color-corrected mercury vapor lamps. American Concrete ornamental lighting standards, which provided a 29-foot mounting height, were installed except on an old bridge where the weight of the new standard would have been a problem. Here, an aluminum pole manufactured by the Union Metal Mfg. Co. was chosen.

(Continued on page 131)

The brightest, toughest 1000-watt Mercury Lamp you can buy!

60,500 lumens of light! That's more than 2½ times the light output of any incandescent lamp of the same wattage. More light for a package its size (7″ diam. x 15 1/16″ in length) than any other available Mercury Lamp today.

And rugged? No lamp stands up to the weather like this one. From base supports to dome supports, the innards are welded like an auto chassis. And it's all protected by a hard glass shell as resistant to thermal shock as a soup pot.

With a rated life of 12,000 hours, Sylvania Silver White Ruggedized Mercury Lamps give you more light much longer—and for less Total Cost of Lighting.

- **New True-Tone Mercury Lamps!** If you're especially concerned with faithful color rendition, see the new Sylvania line of "True-Tone" Mercury Lamps. It opens new areas of use for Mercury. Flatters merchandise and people. All popular wattages available.

And all these lamps are backed by the *exclusive* Sylvania Light Insurance Policy assuring you that:

"Any Sylvania Ruggedized Lamp may be returned to the supplier at any time for full exchange if it fails in less than 1000 burning hours, provided it has not been physically or electrically misused."

See your Sylvania representative about these lamps. Or write: Sylvania Lighting Products, a Division of Sylvania Electric Products Inc., Dept. 63, 60 Boston Street, Salem, Mass. In Canada: Sylvania Electric (Canada) Ltd., P. O. Box 2190, Station "O," Montreal 9.

SYLVANIA

Subsidiary of **GENERAL TELEPHONE & ELECTRONICS**

Testing 1,000-watt 62,000-lumen mercury vapor luminaires mounted on existing American Concrete poles on Washington St.

(Continued from page 129)

By the end of 1959, our municipal utility had installed 60 Westinghouse OV-20 ornamental units and 76 Westinghouse AK-10 or Line Material Spherolite luminaires equipped with 20,000-lumen mercury vapor lamps. In addition, 275 old 2,500-lumen radial wave-fixtures were replaced with 4,000-lumen Westinghouse AK-10 or Line Material Spherolite, and 118 fixtures were installed at new locations.

Results of the Program

Records indicate that the Water and Light Department spent $102,049 on street-light modernization between 1953 and 1957, as compared with only $12,319 in 1952. Everyone in Two Rivers concerned with safety, law enforcement, and public relations feels that the modernization program has paid dividends. The Police Department especially has reported a definite reduction in night-time accidents and this they attribute largely to improved street lighting.

The number of lights in service has increased from 356 in 1952 to 529 in 1959, up 48%. During the same period, the light output was increased from 1,507,000 lumens in 1952 to 4,327,000 lumens in 1959; up 187%. We expected to add 48 lights during 1960.

Though the City of Two Rivers has a street lighting system which could be adequate for years, we at the Water and Light Department do not feel we can depend on it.

Recently, the Department concluded tests of new fluorescent and high-output 700-watt and 1,000-watt mercury-vapor luminaires for use on Washington Street, our main street. We are using the 1,000-watt mercury-vapor luminaire with a Type SH-1 62,000-lumen mercury-vapor lamp. The new luminaire, available from both the Westinghouse Electric Corp. and the General Electric Co., will soon be installed and the 20,000-lumen ornamental luminaires will light a new Wisconsin highway within our city limits. ◄◄

Residents Benefit from County Ordinance

Residents of Cheviot Hills near Sacramento, Calif., are benefitting from modern street lighting, thanks to a new county ordinance. The Sacramento county law requires that all future street lighting installations in its unincorporated areas must equal or exceed lighting levels set up by the American Standards Association and the Illuminating Engineering Society.

Milo P. Thompson the head of the citizens' group behind the new lights in Cheviot Hills, reports that "When we petitioned county officials for street lighting, we found that the system would have to conform to a set of recommended standards for residential streets. We also found that the standards weren't imposing costly restrictions on us, but were a valuable guide. Our objective was to make the street bright enough so that drivers might see children or other pedestrians after dark. And, we wanted the all-night protection these lights would give us from prowlers."

In Cheviot Hills the General Electric luminaires are mounted 25 feet high on steel poles with an average spacing of 185 feet staggered. The 6,000- or 4,000-lumen lamps provide 0.23 footcandle of maintained illumination.

The cost of the lighting was $162 per parcel of land. The maintenance and the operation is paid by an ad valorem (value) tax to the North Highlands Lighting District.

Sacramento County was one of the state's first to adopt a county-wide street lighting code. The standards were recommended by William F. Pillsbury and Henry Hampton of the county department of public works' engineering staff.

"Such a code is an assurance of the future value of all our county areas," Mr. Hampton explained. "At first, developers seemed opposed to the lighting code since it means the costs of the homes would be somewhat higher. But, after some of them had become more familiar with this code and public desire for good lighting, they seemed to favor it. Some are even using good lighting as a selling point." ◄◄

Naugatuck KRALASTIC

The Original ABS Resin

KRALASTIC pipe installation by B. C. Electric Co., Ltd. Pipe extruded by Pacific Plastics of Canada Ltd. Both of Vancouver, B. C.

Canadian company proves **KRALASTIC** advantages

The B.C. Electric Company, first Canadian company to use plastic pipe for gas mains, not only studied the various plastic piping materials available before deciding upon KRALASTIC®, but made this original KRALASTIC installation under carefully controlled test conditions.

A total of 64,000 feet of KRALASTIC pipe was installed during a 3-month period. Nearly a third of this was 3" main, the remainder 1¼" main and ¾" service lines. Close to 50,000 feet of KRALASTIC pipe was installed during the first three weeks alone, with 10,000 feet laid during one peak day. Some soil conditions encountered were described as "severely corrosive" and "quite rocky."

Among the KRALASTIC advantages B.C. Electric found were:

- **Material cost less than that of wrapped steel**
- **Faster, more economical installation**
- **Light weight, ease of handling and fabrication that pleased installation crews**
- **Indefinite projected life**
- **Better flow characteristics and greater inside diameter than conventional pipe of same O.D.**

KRALASTIC is already the most thoroughly proved of all plastic piping materials, with more than 14,000 miles installed for natural gas, electric, water, chemical, radiant heating, and waste disposal lines. Prove the solid economy of KRALASTIC piping and conduit to yourself. Write for full information and names of nearest fabricators.

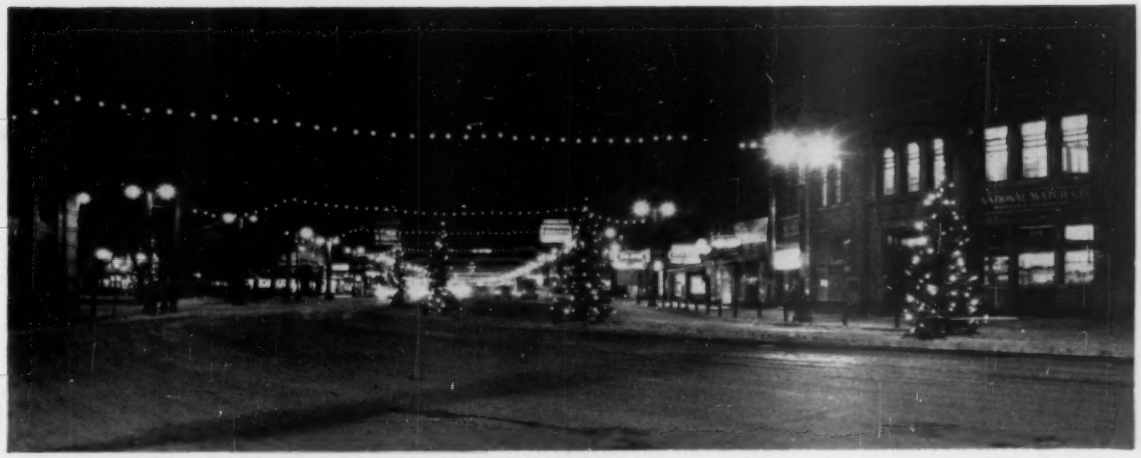
United States Rubber

Naugatuck Chemical Division

DEPT. 1044K ELM STREET
NAUGATUCK, CONNECTICUT

KRALASTIC RUBBER-RESINS • **MARVINOL** VINYLS • **VIBRIN** POLYESTERS

Akron · Boston · Chicago · Gastonia · Los Angeles · Memphis · New York · Philadelphia · CANADA: Naugatuck Chemicals · Elmira, Ont. · Cable: Rubexport, N.Y.



Winnipeg's street lighting in winter on two main streets with regular street lighting plus festoon lights and . . .

. . . illuminated Christmas trees on the divider strips in the center of the street.

Lighting Winnipeg's Streets and Holidays

In 1959 the city of Winnipeg, Canada, added 441 large lighting units to its street lighting system. New installations of ornamental lighting standards were 218 incandescent lamps and 228 mercury vapor lamps. Other streets will be lighted during 1960.

The street lights, during 1959, consumed 18,780,355 kilowatt hours of electrical energy. For decorative purposes in the festoons and for the Christmas decorations on Main Street and Portage Avenue an additional 56,983 kilowatt hours of energy were required by the city.

For the decorative festoon lighting used every night during the three summer months and for other holidays or special occasions, there are 5,200 15-watt frosted lamps used.

Over the Christmas period of about 8 weeks, and in co-operation with the Downtown Business Association, the Winnipeg Parks Board and the City Engineering Department, 64 Christmas trees with a total of 4,800 ten-watt colored lights and 29 Christmas wreaths with 2,175 ten-watt colored lights were erected on the divider strips on Main Street and Portage Avenue. In addition three special strings of decorative lighting were installed on Main Street, each string composed of 520 ten-watt lamps and four 60-watt lamps. This special decorative lighting, made up of a total of 8,535 lamps, represents an electrical load of about 86 kilowatts.

The reported outages of street lamps was 0.09% of a total approximate burning time of over 4,100 hours per lamp per year.

The cost of operating and maintaining the street lighting system for the year was $351,764 or about $1.38 per capita. ◄◄

Lighting Deerfield Beach

The City of Deerfield Beach, Fla., is nearing completion of the installation of adequate lighting units all over the city. The job was undertaken by the Florida Power and Light Company, Delray Beach, Fla. The lights are 2,500-lumen incandescent for general street lighting. On some of the main thoroughfares they are 4,000- and 6000-lumen lights. The units are photo-electric operation.

As acreage areas are developed, additional lighting installations will be made.

CLARENCE H. LANDSITTEL
City Manager

PROMOTIONAL DISPLAY of dusk-to-dawn lighting is demonstrated by District Manager T. C. Brickey at his office, where customers can operate the lamp by covering the Fisher-Pierce control. "Customer" is E. J. Gildehaus of Union Electric Sales Development and Training Division, which provides displays and other promotional material to regional offices.

PHOTOELECTRICALLY CONTROLLED lighting service has proved to be a good off-peak load builder for the system's nearly two-million-kilowatt capacity. Average yearly output of Bagnell Dam, shown here, is 440 million kilowatt-hours. (Photo courtesy Union Electric Co.)

In the St. Louis Area . . .

"Dusk-to-Dawn" Lighting Using Fisher-Pierce Controls Provides Cardinal Improvement In Outdoor Lighting

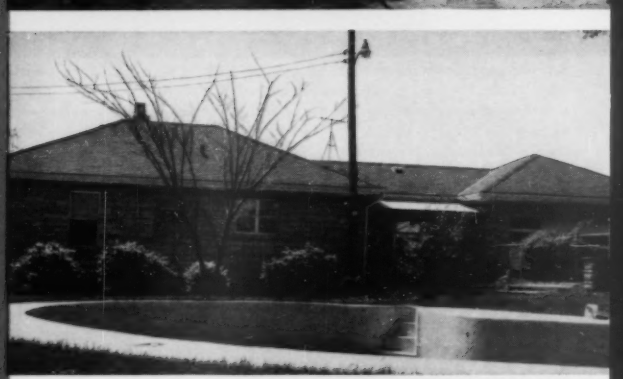
Homes and businesses throughout the Union Electric Company service area can now have all the advantages of adequate outdoor lighting, automatically controlled by F-P Series 6600A photoelectric controls. Vigorously promoted by Union Electric over the past two years, automatic outdoor lighting has steadily grown in popularity. Several thousand F-P controlled installations are already in use, lighting residential yards and driveways, barnyards, advertising signs, lumber yards and other storage and work areas, gas stations, motels, trailer camps, fruit stands and other roadside businesses.

For the utility, photoelectrically controlled lighting is an excellent off-peak load builder, while the use of reliable controls assures lowest maintenance cost. Utility customers appreciate the convenience of *truly* automatic lighting and the protection it offers — protection from vandalism, burglary and accidents. All indications are that automatically controlled lighting will continue to grow in popularity, for the benefit of all concerned.

PROTECTION of business property (top photo) from burglary and vandalism is big selling point for automatically controlled lighting, particularly in outlying areas without municipal streetlighting. Switching by photoelectric controls overcomes the uncertainties of manual turn-on and eliminates adjusting of time clocks for seasonal differences in the length of days.

AUTOMATICALLY CONTROLLED, worry-free residential lighting for yards, driveways and patios (middle photo) is increasingly popular in Union Electric territory. (Photo courtesy Union Electric Co.)

SIGNBOARD LIGHTING (bottom photo) is ideal application of automatic lighting. Photoelectric control assures that the sign will always be seen, even during unusually dark periods of the day. (Photo courtesy Union Electric Co.)



For complete design information and specifications on Serie 6600A controls, write The Fisher-Pierce Co., 94 Pearl Stree So. Braintree 85, Massachusetts.

FP

FISHER PIERCE

Manufacturers of Electrical and Electronic Equipment for Industry, Utilities and the Home

AN AFFILIATE OF SIGMA INSTRUMENTS, INC.

192 L-M Mercury Luminaires Turn Night Into Day On "The Strip" At Colorful Las Vegas

L-M Mercury luminaires are spaced at intervals of 100 to 135 feet along both sides of the famous 2½-mile Strip at Nevada's famous resort town. The Clark County Highway commission selected mercury, rather than fluorescent, because its output is not appreciably affected by the high nighttime temperatures. Also the smaller surface of the mercury units offers less resistance to winds than do the larger fluorescents. Luminaires are on 30-foot Union Metal aluminum poles, with 12-foot brackets. Installation was by Bongberg & Wehrheim, Las Vegas electrical contractors, and equipment was purchased from Standard Wholesale Supply Co. of Las Vegas. Southern Nevada Power Company supplies power through its transformers and controls.

While the smooth black-top highway of The Strip provides easy riding, it absorbs lots of light. The excellent Ovalite optical system, utilizing 400 watt, 21,000 lumen lamps, solves this problem, however, and provides high light output per dollar—1.6 footcandles on the street when new, 1.2 footcandles maintained. This superior illumination, increasing safety on this heavily traveled highway, can be seen for miles in the clear Las Vegas air.

County Engineer George Monanan (left, on truck) particularly liked L-M's "Service-safe" feature, which disconnects the lamp socket when assemblies are swung down for service. This is particularly desirable when handling the high voltage inherent in series systems.

Have You A Lighting Problem? Let Us Help!

Ask the L-M Field Engineer or Lighting Engineer about the broad line of products made by Line Material, leading manufacturer of outdoor lighting equipment. Also ask about L-M Lighting Application Engineering Service. We can solve any outdoor lighting problem. Call the nearest L-M office; or write Line Material Industries, Milwaukee 1, Wisconsin. In Canada: CLM Industries, McGraw-Edison (Canada) Limited, Toronto 13, Canada.

LINE MATERIAL® Industries

McGRAW-EDISON COMPANY

Outdoor Lighting

McGRAW EDISON

486

DISTRIBUTION TRANSFORMERS • RECLOSERS, SECTIONALIZERS AND OIL SWITCHES • FUSE CUTOUTS AND FUSE LINKS • LIGHTNING ARRESTERS • POWER SWITCHING EQUIPMENT
PACKAGED SUBSTATIONS • CAPACITORS • REGULATORS • OUTDOOR LIGHTING • LINE CONSTRUCTION MATERIALS • PORCELAIN INSULATORS • FIBRE PIPE & CONDUIT

Street Lights On Duluth's Ship Canal

Day and night, ships move along the Duluth Ship Canal and yellow street lights mounted on the sea wall act as "homing lights."

Street lights along a sea wall, a steel aerial bridge, and ocean-going vessels flying the flags of every nation make Duluth's Ship Canal a fascinating spot. The beauty of the canal is an outward sign of the engineering knowledge that went into this project many years ago.

Euthusiasm over shipping has persisted in Canada and the United States since the opening of the St. Lawrence Seaway. We both have a new seacoast.

Many ports along the seaway can be pointed to with pride. One is the Duluth-Superior Harbor, western terminus of the St. Lawrence Seaway. The Duluth Ship Canal, the main entrance to the harbor, was originally 250 feet wide, 1,200 feet long, and 20 to 25 feet deep. To accommodate heavier traffic and ships with greater drafts, the canal was enlarged 55 years ago to a width of 300 feet and a length of 1,734 feet—sufficiently large for today's heavy ocean traffic. The canal is 32 feet deep at the entrance and decreases to 26 feet at the harbor basin.

The Canal connects Lake Superior with the Duluth Harbor basin. The piers consist of a concrete superstructure built on a rock-filled timber crib substructure 18 feet wide. This substructure is supported on piling. The piers extend 1,000 feet into the lake.

The only change has been modernization of lighting facilities. Mounted along the edge of each pier are street lighting units replacing older ones. The new lighting was planned not only to light the promenade but also to act as homing lights for ships entering the canal at night. The units, Suburbanaires manufactured by Line Material Industries, are mounted on 15-foot custom-made galvanized steel poles with eight-foot davit arms.

The 2,500-lumen 189-watt lamps in the luminaires are amber colored. This makes it easy for skippers to navigate their ships into the canal, since the amber lights contrast with other lighting in the harbor area. They also help skippers to determine their position under bad visibility. The units formerly used consisted of ball globes with 60-watt lamps mounted on 12-foot ornamental poles. Sixty-four of the old units were replaced by 32 Suburbanaires. The light that is now provided has high intensity but little glare.

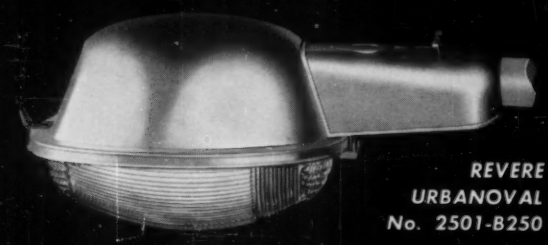
The only other modernization was in 1929, when the vertical lift bridge, which spans the Duluth Ship Canal, was improved. Authorized by an Act of Congress and originally constructed in 1905, the bridge is now owned and operated by the City of Duluth.

RALPH S. KNOWLTON
Administrative Officer
Corps of Engineers, U. S. Army

Grandville's Fluorescents

Chicago Drive in the main business section of Grandville, Mich., is equipped with fluorescent fixtures. These lights were installed during the summer of 1958 by the Consumers Power Co. The annual rental charge is $125 per year per unit.

REVERE
UNITIZED URBANOVAL
No. 2531-B175



REVERE
URBANOVAL
No. 2501-B250

New Revere 2500 Series Urbanoval luminaires use 100, 175 or 250-watt mercury lamps. Unitized Urbanoval features built-in constant-wattage or reactor ballasts. Conventional Urbanoval is designed for external ballasting. Both types are available with or without mounting adapter for E.E.I.-NEMA standard plug-in locking-type photo-electric control. Choice of Revere-Corning Pyrex® molded prismatic refractors provides I.E.S. Type II or Type II—4-way distribution (or Type III or 4-way with phosphor-coated lamps). Available with 1¼" or 2" slipfitter.

NEW FAMILY OF REVERE LUMINAIRES

New *unitized* oval mercury luminaires with built-in ballast components are the latest addition to the Revere family of street lighting equipment. New 2600 Series Endoval luminaires provide high-level, glare-free illumination for arterial streets and highways. New 2500 Series Urbanoval luminaires are designed to provide economical lighting for residential areas or secondary streets where uniform, low-level lighting is desired. Both series offer the advantages of modern styling, substantially reduced installation costs, and efficient, economical performance.

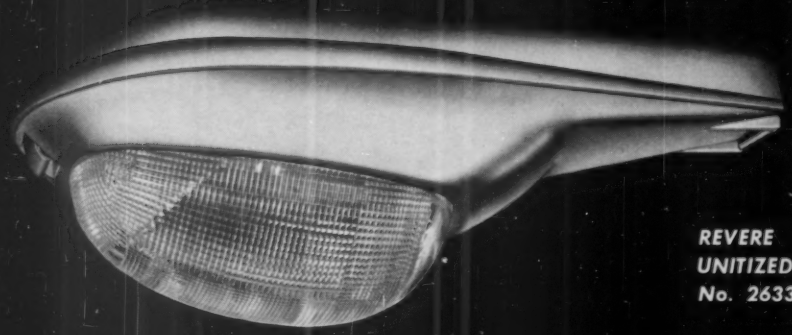
Revere's new unitized luminaires together with newly designed conventional luminaires let you solve every street and highway application problem the one *best* way. You can select high quality, design-matched Revere luminaires, poles and equipment specially engineered for every street lighting need. *Send for complete catalog information and technical data.*

Revere ELECTRIC MFG. CO.®

OUTDOOR LIGHTING

Revere Electric Mfg. Co. • 7420 Lehigh Avenue • Chicago 48, Illinois (In suburban Niles)
Long Distance Phone: NIles 7-6060 • Chicago Phone: SPring 4-1200 • Telegrams: WUX Niles
In Canada: Curtis Lighting, Ltd., Leaside, Toronto, Ontario

New Revere 2600 Series Endoval luminaires use 250 or 400-watt mercury lamps. Unitized Endoval features built-in constant-wattage or reactor ballasts. Conventional Endoval employs same housing, reflector and Revere-Corning Pyrex® molded prismatic refractor, but without built-in ballast components. Both types are available with or without mounting adapter for E.E.I.-NEMA standard plug-in locking-type photo-electric control. Adjustable socket positions produce A.S.A.-I.E.S. Types II, III, or IV with proper choice of lamp.



REVERE
UNITIZED ENDOVAL
No. 2633-B400

Random Notes on the APWA Congress

Everything from a critical analysis of public construction by Dr. John Kenneth Galbraith, one of the nation's leading economists, to Ake A. Bjorkman's discussion on municipal sanitation practices in Stockholm, Sweden, sparked this year's American Public Works Association Congress held last August in New York City. Dr. Galbraith, Harvard University professor, and author of "The Affluent Society," cautioned that except for airport buildings and some schools, municipal structures appear chiefly to be "sanitary" and a little more should be spent to make them attractive. More than 3,000 were in attendance.

The following are abstracts of some of the papers presented:

Living by the Clock

—to the extent that everything must be done within a few minutes of the scheduled time is not for the man responsible for scheduling and control of refuse collection. However, scheduling on a daily basis can be accomplished despite such variables as seasonal variations in quantities of refuse, changes in weather, holidays, traffic conditions, unanticipated absenteeism among employees and varying rates of performance within a group of employees.

To meet the many complexities of refuse collection operations and still maintain a daily schedule, Norman B. Hume, Director, Bureau of Sanitation, Los Angeles, and Jack I. Kerkis, Assistant Superintendent, Refuse Collection Division, employ a combination of the two basic methods of scheduling procedures in general use. These consist of the task basis, whereby crews are assigned specific areas on scheduled days and are dismissed upon completion of the task, and the method whereby employees operate on a time basis.

In Los Angeles a "dispatcher" controls the activities of a number of collection crews, averaging about 55 per dispatcher. He records each crew's progress with information received from the truck driver when he delivers his load to the disposal site or via telephone according to instructions. With this information he can reassign crews to areas in need of help or may authorize crews to work overtime as the situation may warrant. In this manner each scheduled collection route is covered within the specified day with minimum overtime. The dispatcher also uses the report to equalize the day's work load among all of the collection crews.

Incinerator Competes with the Dump

—and can be less expensive than the sanitary landfill according to John W. Leake, Director, Department of Sanitation, Louisville, Ky. Although the most expensive from the standpoint of initial cost, when viewed from the operational approach and on a long-range basis, incineration may well prove the most economical of the three methods of waste disposal, especially for the larger cities.

Mr. Leake bases his observations largely on three considerations: the ability to locate incinerators within city limits and at such points as to eliminate costly hauling; the material change in municipal refuse both as to quantity and character; and the great improvement in incinerator design in recent years.

Another argument in favor of incineration is the sale of by-products such as heat or steam, tin cans and other metal, and residue for fill purposes. Air pollution is no longer an argument against incineration, for stack emissions can be virtually eliminated.

Mr. Leake offered several criticisms in the form of suggestions. These included the necessity of having a good set of recording scales—or at least one scale—so that the operating personnel have an accurate indication of the quantity of material being burned, the labor cost per ton, maintenance cost per ton, and the man hours per ton; and the establishment of a set of

(Continued on page 142)

Howard Clark Wins 1960 Aid-to-Education Award

The 1960 Aid-to-Education Award, administered by the American Public Works Association and sponsored by THE AMERICAN CITY MAGAZINE, went to Howard Clark of East Orange, N. J. Mr. Clark attends the Newark College of Engineering evenings working for a Bachelor of Science degree in Civil Engineering and works for the City Engineers Office, City of East Orange during the day. He will use the $1,000 award to continue his studies at Newark College of Engineering.

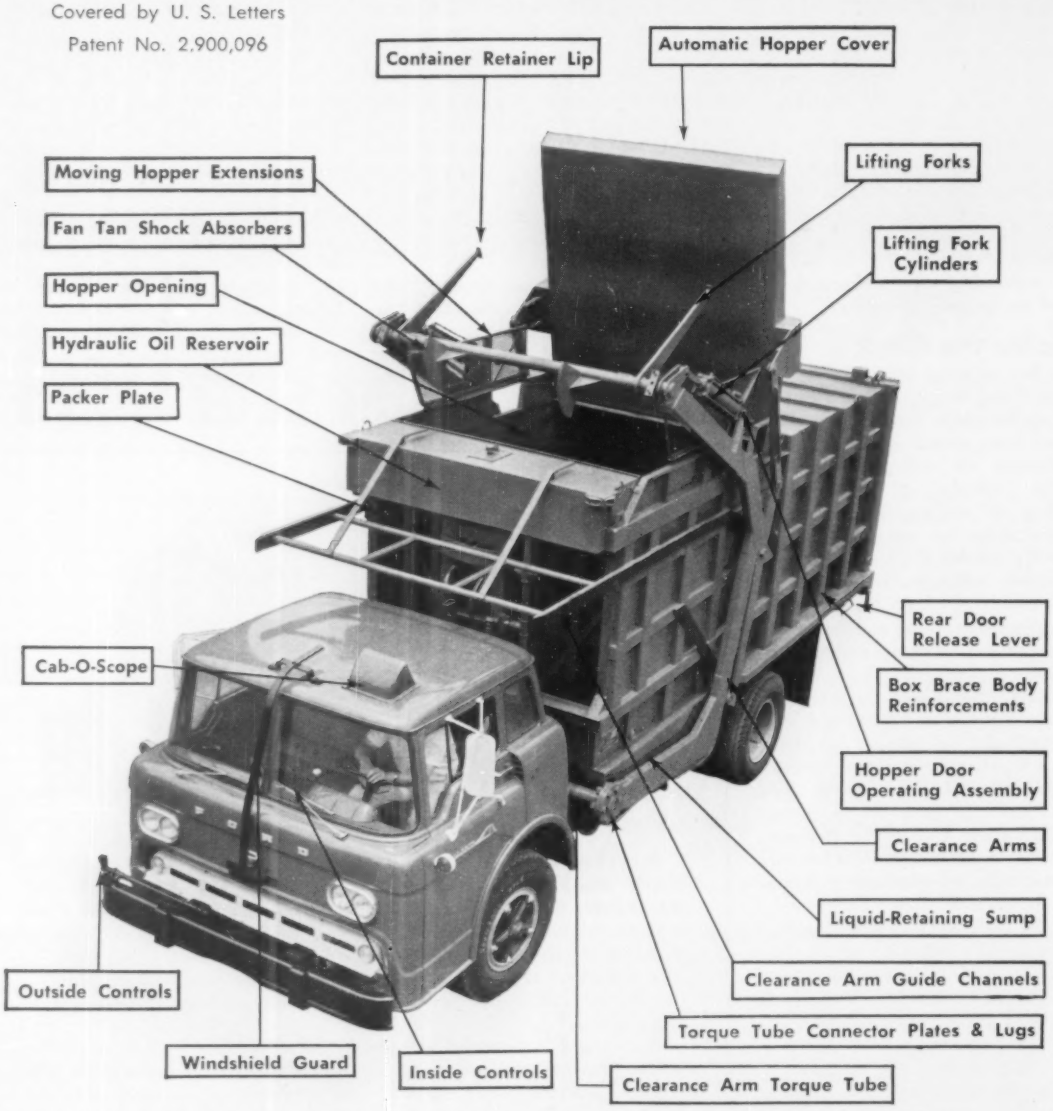
The award is intended to provide financial assistance to deserving senior students and graduates of accredited engineering schools who wish to continue their education in preparation for careers in the public works field. The recipient is selected by a special committee appointed by the President of the APWA on the basis of a rating system which takes into account scholastic capacity, personal qualities, and the relative excellence of a paper written on some subject pertaining to public works.

This year's committee consisted of August E. Zentgraf, Chief Engineer, Department of Public Works, Newark, N. J., (Chairman); E. L. Filby, Black & Veatch, Consulting Engineers, Kansas City, Mo.; and Arthur D. Bird, City Engineer, Cincinnati, Ohio. Mr. Clark's paper described the reconstruction of Tremont Avenue, East Orange, a project in which he took an active part.

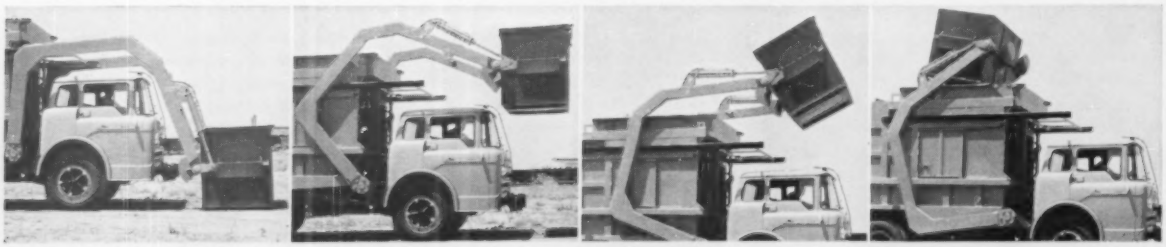
DEMPSTER® DUMPMASTER®

TOPS IN FEATURES AND PERFORMANCE
Now in operation in Most Major Cities

Covered by U. S. Letters
Patent No. 2,900,096



Write today for FREE BROCHURE • DEMPSTER BROTHERS, Inc. Knoxville 17, Tenn., Dept. AC-10



CUT INITIAL COST AS MUCH AS 40¢ PER SQ FT

It's easy with the most powerful fluorescent you can buy! If you're planning a new building . . . or remodeling an existing one . . . you can shave your initial lighting investment by as much as 40¢ a square foot.

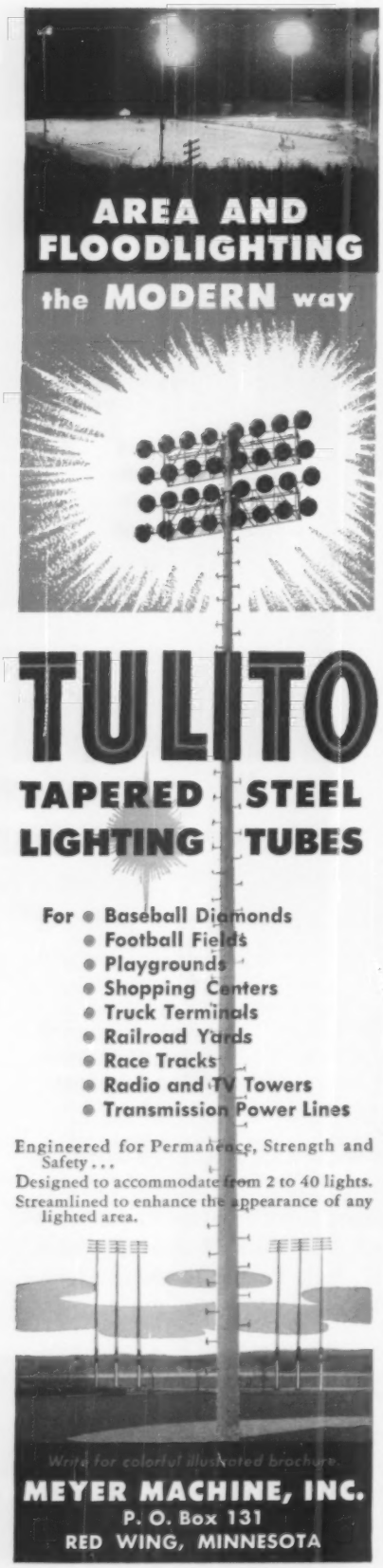
How? Specify G-E Power Groove* Lamps. They give you more light than any other lamp. You use fewer lamps, fewer fixtures, fewer everything else it takes to light your building properly. And your savings keep mounting. With fewer lamps, fixtures and ballasts, your maintenance bills will be lower, too.

The secret's in the grooves. They're what bend the arc stream (it's straight in other fluorescents) . . . lengthen it . . . make the lamp put out more light. Only G-E Power Groove Lamps have 'em. Only General Electric gives you this years-ahead light source—another example of a difference that makes a difference in value to you. Call your G-E Lamp distributor next time *you* need lamps. General Electric Company, Large Lamp Dept. C-031, Nela Park, Cleveland 12, O.

*General Electric's trademark for configurated fluorescent lamps

Progress Is Our Most Important Product

GENERAL ELECTRIC



(Continued from page 139)

standards as to what should be the man minutes per ton required for operating an incinerator plant. With the latter figure broken down into such items as administration, supervision, direct operations, maintenance, etc., persons operating incinerators could determine whether their operations are average, above average or below average.

Composting

—of refuse and sewage solids should be seriously considered by public works men as a method of treatment and utilization of organic wastes when the need for added capacity or a change of methods is indicated. John R. Snell, president of John R. Snell Engineers, Inc., bases this statement on the international acceptance of composting as a method for the treatment and utilization of municipal organic wastes and the closer relationship between actual practice and theory. Although many of the practical approaches to composting resulted from some whim or inventive mind, more recent developments come closer to following the science or theory of the subject.

Mr. Snell warns that no municipality should accept blindly composting simply because it is a new and glamorous process. The proper way to determine whether or not it should be used, is to retain an experienced, competent consulting engineer to study the particular circumstances involved and to study the relative merits and economics of the various methods of treatment and disposal available, including such old standbys as incineration and sanitary landfill. He recommends that municipalities entering the field of composting employ private enterprise in the sale and disposal of their end product.

Citizen Satisfaction

—is the most difficult to achieve of all the major objectives of a modern street cleaning organization, including health, safety and general welfare. It is also difficult and costly to maintain a standard of street cleanliness above that which is maintained on the abutting private property. However, Carl V. Gailey, Superintendent, Highway Maintenance Division, Department of Public Works, Cincinnati, finds that constant work at a program of education and enforcement does have an uplifting effect on the general cleanliness of a neighborhood.

A good street cleaning organization takes much of thoughtless littering in its stride during normal cleaning operations but when littering becomes excessive, white wing service is a must to maintain a high standard of cleanliness. Here again Mr. Gailey is confident that the greatest reduction in the cost of this effort can be realized through public education. As the result of a four-year anti-litter program, plus careful machine routing, Cincinnati found it possible to reduce the number of white wings from 25 to 21.

While Mr. Gailey believes that the secret of a good street cleaning operation is a proper combination of men and machines in the right quantity, at the right time, and in the right place, he emphasizes the importance of the quality, ability and training of the personnel. Also, the supervisor who is on top of his job is one who is never completely satisfied with the methods he is using and is constantly searching for better methods. A misconception worth noting and in need of correction is the tendency to think that an employee who, for one reason or another, is not capable at other tasks in municipal government is suitable for street cleaning work.

To Protect Public Health

—public health engineers must halt the development of "Fizzlevilles" in "Scattertown" counties and put forth positive effort to build safe, healthy communities in well organized counties. So warned Morton S. Hilbert, Assistant Director, Wayne County Health Department, Eloise, Michigan. Although there are many existing environmental health problems which need correction, Mr. Hilbert finds that the most productive work in the public health field involves the preventive aspect of enviormental sanitation.

The best environmental health interests of the people require that the local health department take a definite stand on matters pertaining to sewage collection and disposal.

Areas which are not suitable for development should not be used for housing and no development should be allowed to take place unless it can provide adequate means of sewage disposal. In most cases this requires that sewerage systems and sewage treatment plants be owned and operated by a municipal corporation, township, village or city. Where existing conditions are

(Continued on page 144)

Patented

Vandalism and theft go down when WIDE-LITES go up!

Police records show that proper floodlighting cuts robberies by as much as 65% . . . reduces vandalism . . . slashes juvenile delinquency. And a quick check of the Wide-Lite Protective Light's anti-vandalism features proves it is the ideal floodlight to protect schools, storage areas, jails and public buildings.

Its exclusive design features a mercury-vapor lamp plus two incandescent lamps to provide maximum light output. Any one of the lamps will continue to give protection even if the other two are knocked out. And its special tempered glass lens and rugged cast aluminum body protect the lamps from breakage.

Wide-Lite's exclusive rectangular reflector gives a broad light pattern that makes possible shadow-free lighting with fewer floodlights, saving installation costs. Maintenance, too, is low, because lamps used in Wide-Lite Protective Lights have many times the life of ordinary incandescents.

Get all the facts on how Wide-Lites can give your city more protection against vandalism and theft—send the coupon today!

WIDE-LITE

WIDE-LITE CORPORATION

P. O. Box 191 · Houston 1, Texas

In Canada: Wide-Lite Division, Wakefield Lighting, Limited, London, Canada

OUTDOOR AREA LIGHTS · VAPOR TITE MODELS · INDOOR LUMINAIRES
MOBILE WORKING LIGHTS · SPORTS LIGHTS · PROTECTIVE LIGHTS

WIDE-LITE CORPORATION
P. O. Box 191 · Houston 1, Texas Dept. AC

Send more facts on Wide-Lite Protective Lights. No obligation, of course.

Name_____

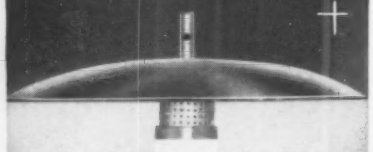
Title_____

Address_____

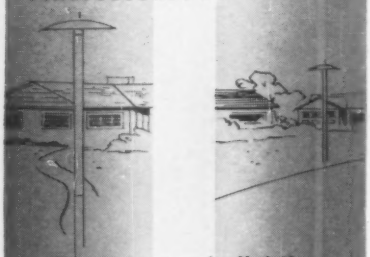
City_____ Zone_____ State_____

New Era in Outdoor Lighting...

Regal-Lite



The High-powered Low-cost Fluorescent...



New elegance in lighting for
RESIDENTIAL AREAS
HOMES • PATIOS • SCHOOLS
PARKS • PLAYGROUNDS

Brighter Light
Lower Operating Cost
Maintenance Free

Regal-Lite can be **serviced from the ground.** Exclusive hinged base permits pole to be lowered to ground and lamps changed in less than five minutes—**by one workman with one wrench!**

For complete information about the modern, low-cost illumination of Regal-Lite write:

STERNER INDUSTRIES, Inc.
WINSTED 1, MINNESOTA

(Continued from page 142)

inadequate, the proper authority (usually the State Department of Health) must order the community to correct the situation. When a collection system is installed, regulations should call for the connection of all occupied parcels of land to connect to the system within a definite prescribed time.

Although the problem is a tough one, Mr. Hilbert believes that through cooperation the existing government agencies can find an adequate solution without resorting to new types of government or super-government units.

Better Methods

—of sewage treatment are needed to remove the difficult-to-treat constituents of sewage, both domestic and industrial. In describing this need, B. A. Scheidt, Chief Engineer, and Dr. Emanuel Hurwitz, Director of Laboratories, Metropolitan Sanitary District of Greater Chicago, pointed out that while much has been accomplished in the way of improving existing processes, no fundamentally new process of sewage treatment has been developed in the past 43 years. Estimated water needs for the year 1980 point out the need for better methods of treatment for, with only 515 billion gallons per day of fresh water available from all our resources, some water will have to be reused to meet the anticipated demand of 600 billion gallons per day.

To Get the Most

—out of a sewer system pay particular attention to design and construction as well as maintenance. This is especially true in lines using smaller diameter pipe where failure often occurs when trench loads exceed allowable pipe strength. This can readily be avoided in the design by allowing for wider trenches or applying a factor of safety of at least from 1.5 to 2.0. Special attention should also be given to grades—with minimum grades used only where absolutely necessary.

In discussing the subject of maintenance, Charles R. Velzy of Nussbaumer, Clark & Velzy, consulting engineers of New York, suggests that a system of preventive maintenance and inspection be adopted since such a system avoids many emergencies caused by sewer stoppages. The maintenance crew should be well trained and well equipped to properly carry out its task. He cited Nassau County, L. I., N. Y., as one having an excellent preventive maintenance program.

The Practical Way

—to move traffic is to concentrate on getting full service from present streets. Henry M. D. Noble, Traffic Engineer, Little Rock, Ark., explained that to do so involves the application of control measures authorized by law, judicious installation and operation of traffic control devices and localized structural changes in the streets and highways, provision for effective utilization of public transit, and other factors. He suggested that the use of streets by various vehicles be given due consideration; such as segregating high-speed traffic from low-speed traffic.

Limited street widening should not be attempted unless it results in additional lanes of traffic. Other helpful but relatively inexpensive aids to better traffic movement include increased curb radii at intersections, and channelization. One of the newest and most effective aids is the modern electronic traffic control system.

Awareness of the Value

—of modern street lighting will descend on municipalities like a full-fledged forest fire, warns Edmond C. Powers, Educational Director, Street and Highway Safety Lighting Bureau. Many cities have found through actual experience that good lighting means fewer traffic accidents and serves as an effective deterrent to crime. People now expect a well lighted community and the challenge belongs to the administrators and public works officials. To help meet this challenge, Mr. Powers invites cities to use the services of the Street and Highway Safety Bureau to obtain the latest available lighting information.

Centralized Maintenance

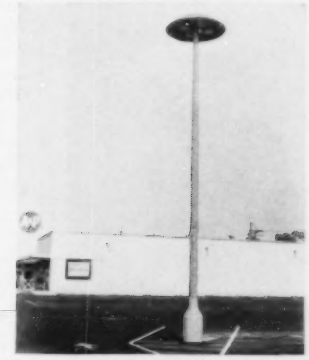
—can be a successful operation, argued Charles McCarthy and S. G. Gentile of Detroit. Mr. McCarthy is Superintendent of the Central Building Maintenance Division of that city and Mr. Gentile is Deputy Commissioner and General Superintendent of the Department of Public Works.

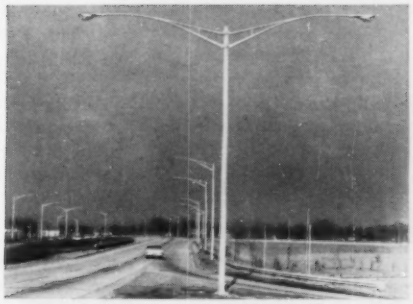
By setting up such a division, Detroit has brought all buildings up to code standards, and keeps them that way. The city has provided full employment to tradesmen on a 12-months' basis, reduced maintenance costs and prolonged the life

(Continued on page 146)

HY-LITE

Stress-Spun concrete standards....



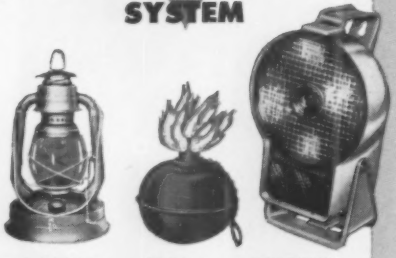


- finest appearance • lowest maintenance
- longest life...for every lighting need

• Catalog No. 400 offers complete information. Write for your copy today. Address the American Concrete Corporation, 5092 North Kimberly Avenue, Chicago 30, Illinois.

American Concrete

STRESS-SPUN CONCRETE LIGHTING STANDARDS



LANTERNS TORCHES VISI-FLASH

Use Dietz Visi-Flash Lights to alert the oncoming driver. Brightest, safest, most trouble-free flashers on the market. Warn: "Danger Ahead" for up to 1500 hours without changing batteries.

Use Dietz Lanterns to locate hazard in relation to driver's position. Show exact location, shape, extent, and boundaries of hazard area. Burn up to 100 hours.

Use Dietz Torches to guide driver around the hazard. Fully illuminate the danger in every weather. Burn up to 48 hours on low cost kerosene.

Go DIETZ and you go Safely

It's Fall . . . shorter days . . . still lots of traffic!

Proper lighting of the highway hazard is an essential investment to protect the public, workers, and equipment, and to eliminate potential causes of costly lawsuits.

NEW! **DIETZ**
HAZARD WARNING PLANNER

A Practical On-the-Job Tool! Quickly and easily shows how, when, and where to use each type of warning light for maximum safety under all weather conditions and all types of roads and speeds.

Send $1.
for each Planner — personalized with your name

R. E. DIETZ COMPANY
Dept. 910 Syracuse 1, N. Y.

(Continued from page 144)

of the city's physical structures, and provides city-wide emergency service without additional cost. Additional benefits include bulk purchasing of materials, thereby effecting considerable savings, and the establishment of an apprenticeship program in the various trades from which vacancies are filled.

Taking Over the Reins

—for the next year will be Frederick W. Crane, general manager, Buffalo, N. Y., Sewer Authority, as President of the American Public Works Association and Albert G. Wyler, director of streets, New Orleans, La., as Vice-President. Mr. Crane, former director of public works for the City of Buffalo, has been a member since 1946; Mr. Wyler joined the Association in 1937.

Photo Copying Seen Answer To Paperwork

Hand-written business forms can often be used in business and government without further copying or typing. This was the theme of a press luncheon given at the Park Lane Hotel, New York, recently by the Eastman Kodak Co., Rochester 4, N. Y.

The pencil coupled with error-proof photo copying can overcome much of the avalanche of paper clogging most departments.

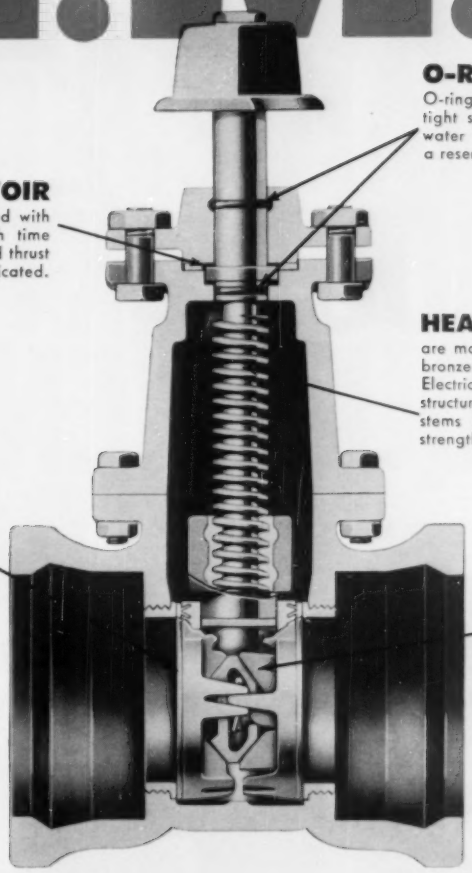
The "paperwork problem," and the method of attacking it was outlined by James E. McGhee, vice-president and Paul Barbee, manager of Business Photo Methods Sales, both of Eastman Kodak Co.; and Edward Rosse, management analysis officer, Division of Accounting Operations, Social Security Administration.

"Copying in the office and other uses of photography in the office through microfilming is not a new subject with us," Mr. McGhee says, "but modern office copying—that is, low-cost, easily operated units which can be decentralized throughout a company—is a new subject in which we and others have been occupied for only the past seven or eight years."

According to Mr. Rosse, there is too much copy work being done by longhand and typewriters. "As I see the marvelous new developments in photo reproduction coming into use month by month, it appears certain to me that we are

(Continued on page 149)

M.M. gate valves...



O-RING STEM SEALS
O-ring at bottom provides a positive water-tight seal. Upper O-ring seals dirt and water from bearing surfaces and acts as a reserve pressure seal.

LUBRICANT RESERVOIR
the area between the O-rings is filled with a special, life-time lubricant. Each time the valve is operated, both O-rings and thrust collar are completely lubricated.

HEAVY BRONZE STEMS
are machined from high tensile strength solid bronze rod for all valves up to 16". Electrically upset thrust collar improves grain structure. Valves 18" and larger have stems cast from extremely high tensile strength manganese bronze.

BRONZE DISC RINGS
are dovetailed to become part of the disc and are then machined for precise mating with the seat rings.

FOUR POINT WEDGING MECHANISM
exerts even pressure at four points near the outer edge of each disc to eliminate disc deflection and distortion and to assure tight shut-offs.

by

MUELLER®

MINIMUM MAINTENANCE...

The great attention to every detail in research, design and engineering that is a part of every Mueller product, assures you years of maintenance-free service from gate valves by Mueller. Your water supply or fire protection system is always dependable when Mueller gate valves are an integral part of the system. All of these valves contain the long life features of Double Disc, Parallel Seat type construction specifically designed for water distribution piping. Mueller Iron Body, Bronze Mounted Gate Valves are another example of the quality products made for the water industry. Complies with AWWA specifications. For complete information, write . . .

MUELLER CO. Since 1857 Serving the Water and Gas Industries QUALITY 5524

MUELLER CO.
DECATUR, ILL.

Factories at: Decatur, Chattanooga, Los Angeles
In Canada: Mueller, Limited; Sarnia, Ontario

ONLY ROTO-PAC HAULS AN EXTRA LOAD EVERY DAY WITHOUT EXTRA EQUIPMENT OR EXTRA PAY!

That's what the time saved on any route by ROTO-PAC adds up to, thanks to continuous loading plus continuous compaction.

SEE IT IN ACTION WITHOUT LEAVING YOUR OFFICE . . .

Color movies of the world's finest and fastest rubbish collection unit show the versatility of ROTO PAC on both typical and unusual routes. Prefer a "live" demonstration? A letter or phone call arranges it. No obligation, of course.

P.S. At the same time you'll see the ultimate in container systems—built to handle both manual and automatic loading of containers ranging from 1/2 to 6 yards from dock or street level.

CITY TANK CORPORATION
(A Unit of Hagan Industries, Inc.)
53-09 97th Place, Corona 68, N. Y. • NE 9-9800

(Continued from page 146)

going to see less and less hand typing."

The concept of office copying systems, according to Barbee, sprang from hundreds of discussions held throughout the country with representatives of company management.

Mr. Barbee reported, "That one of the reasons for this paperwork bottleneck is needless transcription of innumerable forms and communications. When office copying methods are used, the bottleneck disappears.

"The original copy, whether it is handwritten or typed, is simply copied and routed to the various departments concerned. These copies are error-proof. They can be made rapidly and inexpensively on office paper of virtually any color. It's basically a 'one-writing' system." ◄◄

Double the Voting Machines in Edina

Twenty-five new voting machines will be available to voters in Edina, Minn., for the 1960 election. Moreover, voters now have improved facilities at the seven polling places because of action by the Village Council, the School Board, and a local citizens' committee. The new units bring Edina's total of Automatic Voting Machines to 50.

Officials estimate that an average of 246 voters will use each machine this fall; this also is the expected average use of voting machines in the seven major Minneapolis-St. Paul suburbs, of which Edina is one. In 1958, Edinaites had to queue up to register an average of over 440 votes per machine, the highest in the entire suburban area. ◄◄

Two Edinaites exercise a privilege not allowed in many parts of the world.

machine: in June 1959 we purchased a Vermeer Pow-R-Stump Cutter.

Stump Removal

. . . wins public good will and adds beauty to Appleton, Wis.

By EDWIN DUSZYNSKI*
Director of Public Works

Appleton, with a population of about 48,000, instituted a stump-removal program strictly as a public relations activity. During the first four months of operation, July through October 1959, we learned two things. First, if handled properly, this business of removing stumps can be accomplished quickly, satisfactorily and economically. Secondly, the results in public good will and better-appearing streets is well worth the small cost involved. Other benefits add to the program's value.

For many years the Public Works Department did offer some assistance to property owners faced with the problem of removing stumps along the parkway or boulevard strip between the street curb and sidewalk. This consisted of lifting out the stump and hauling it away after the property owner had excavated around and under the stump and cut enough of the roots for easy removal. We made no charge for this service.

Over the years many trees in the parkway had been cut down for various reasons. In most cases a chain saw had been used, with the cut made as close to the ground as possible. Only a few people undertook the task of digging out the remaining stump. Others resorted to whittling away at the stump with an axe, burning it from the top down, or drilling holes in the stump and applying chemicals to accelerate disintegration. Seldom did these methods result in a satisfactory job, and in most cases the stump was left intact to mar the appearance of the parkway.

Aldermen Investigate

In view of the interest of abutting property owners in improving the parkway strip, which is part of the street right-of-way, several aldermen felt that the city should take some action. The expenditure of city funds was justified in that the work would be on city property.

Research revealed that others had tried many types of stump removal equipment but a Vermeer stump cutter showed the most promise. On a trial basis we hired two retired city employees of an adjacent city who owned such a machine and were engaged in the stump-removal business. These men went to work on several troublesome stumps while several aldermen watched the operation. At the next budget time, these aldermen provided the impetus to include funds [illegible] machine: in June 1959 we purchased a Vermeer Pow-R-Stump Cutter.

[illegible] of cutting a stump ten inches below the level upon which the tires rest. A larger machine is available that will cut 18 inches below grade. With either machine the cut below actual grade can be extended by excavating around the stump to permit the machine's wheels to be placed at a lower elevation.

The unit, mounted on two pneumatic tires, consists primarily of an air-cooled gasoline engine supplying power to operate a cutting wheel and hydraulic pump. The pump provides pressure for hydraulic movement of the cutting wheel either horizontally or vertically.

We use a Willys Jeep to tow

* Mr. Duszynski has served as Director of Public Works for the City of Appleton since 1954 and prior to that held the same position in Cudahy, Wis.

Thanks, Mr. Duszynski!

Mr. Edwin Duszynski, Director of Public Works in Appleton, Wisconsin, tells of his experience with the Vermeer Pow-R-Stump Cutter in the above article from the June issue of American City Magazine. "The most economical method of stump removal I know of," is the way he describes the action of the powerful model 10 Pow-R-Stump Cutter. This is just one of hundreds of outstanding recommendations received each year from cities, parks, golf courses, cemeteries and tree service firms all over the country.

PATENTED VERMEER POW-R-STUMP CUTTER MAKES CHIPS OUT OF STUMPS IN MINUTES

You'll save hundreds of man-hours and thousands of dollars annually when you remove ugly stumps with the Pow-R-Stump Cutter. Removes any size stump in minutes. It is an easy one-man operated unit. Allows close quarter cutting to sidewalks, buildings, curbs and driveways without damage. There's ONLY ONE POW-R-STUMP CUTTER . . . ask for a FREE demonstration. (Registered under U.S. Patent No. 2912022.)

MAIL COUPON FOR COMPLETE ILLUSTRATED LITERATURE AND LOW PRICES NOW

Send complete descriptive literature and prices on your POW-R-STUMP CUTTER to:

NAME..... PHONE.....
TITLE or DEPT.....
FIRM.....
ADDRESS.....
CITY..... STATE.....

VERMEER MANUFACTURING CO.

1452 W. WASHINGTON • PELLA, IOWA

traffic control by RADIO

"Splendid results throughout the city and particularly on the main arteries . . ." are being achieved in Washington, D.C. with the new Radio Traffic Control System, according to Engineer Commissioner Alvin Welling.

Motorola now offers you greater traffic control efficiency, flexibility and economy—city-wide or individual intersection control from a central station.

Efficiency . . . high speed, high capacity automatic programming supplemented by instantaneous pushbutton control of any function.

Flexibility . . . programs can be changed instantly when required. Intersection units can be easily relocated. Expansion simply requires the addition of intersection units.

Economy . . . radio provides control at less cost per intersection and at far greater distances from the central control point.

Reliability . . . completely transistorized intersection units, combined with modular plug-in construction, facilitate servicing, interchanging of components, and additions.

Proved on-the-job, radio control stands ready to help you meet rapidly mounting traffic problems, simply and economically. Let us show you how.

MOTOROLA

RADIO TRAFFIC CONTROL

Motorola Communications & Electronics, Inc., 4501 Augusta Blvd., Chicago 51, Illinois
A Subsidiary of Motorola Inc.

The City Tells Its Story

Edited by PAN DODD EIMON

Municipal Public Relations

Toledo Makes Headlines, Impact on Citizens With New PR Office, Cooperative Ventures

Public relations for the City of Toledo, Ohio, have boomed in the last two years.

Early in 1959, the city created the Office of Public Information and Industrial Promotion under City Manager Russell Rink. Its purpose, as Mayor John W. Yager puts it, is "to formalize and coordinate the city's publicity program with a partial view to attracting and promoting new industry." Two key community development groups, the Port of Toledo and the Toledo Area Chamber of Commerce, applauded the city's move.

With the appointment of Director James F. Garvin to its newly created office, the city's public relations operation was formally underway. By year's end, Toledo had earned the accolade of U. S. cities for its MPR efforts, through a citation by the American Municipal Association as the city with the "best overall public relations program."

Here are Toledo's major PR moves, accomplished with the acknowledged help of many related-interest groups.

Focus on Downtown

Toledo's "Shoppers' See-Way," linking an experimental downtown pedestrian mall with the city's new role as a world port, brought Toledo world-wide publicity. The city's OPI whetted editors' appetites with a packet of news releases and black-and-white photos of the mall. Six hundred of the nation's weeklies, major newspapers, and professional and trade magazines featured the mall during its four-month trial in the summer of 1959.

City planners, department heads, local architects, builders, artists, and businessmen cooperated in creating the mall. The flood of attention it has brought Toledo, and the city's mid-section, more than repays the modest $15,000 which the city council appropriated to pay for non-contributed materials and labor. City officials and business leaders from every state, from Canada and many foreign countries, invaded Toledo to inspect the "See-way" and to discuss and write about its potential. So great has been the request for information, OPI has prepared a 16-mm color movie about the mall. This is available to other cities, on request to the City of Toledo.

Keeping his eye on the city's real objective in the project, PR director Garvin says, "If the malls were forgotten tomorrow, they would have paid for themselves a hundredfold in the positive uplift and progressive attitude they engendered in Toledoans—an attitude which is already infiltrating other realms of civic endeavor." For instance, in the flush of new concern for the city, Toledo residents passed a two-mill levy, for an indefinite period, to provide at least $1,700,000 annually for the University of Toledo, a municipal institution.

Once the mall was successfully underway, the PR office turned "virtually 100% attention" to promoting annexation by providing information and other supports to people in 10 square miles surrounding the city. Principal techniques included:

An annexation team was created to coordinate the efforts of town-

(Continued on page 153)

Toledo Creates PR Office

Toledo Ordinance 83-59 creates the position of "Office of Public Information and Industrial Promotion" director.

***Section 1* provides that this position be in the "non-competitive class of the classified civil service of the City of Toledo" and that the salary be $8,500 per annum.**

***Section 2* states that "the said Director of Office of Public Information and Industrial Promotion shall be appointed by the City Manager and shall be subject to the supervision and control of the City Manager. Said Director shall have no specific term of office but shall serve until a successor has been appointed or until otherwise relieved of his duties by the City Manager."**

***Section 3* defines the work of the new office to "advertise the resources and natural advantages of the City of Toledo, its enterprises, its adaptability for industrial sites, its educational and cultural institutions, its climate, its financial condition, and all other of its resources and advantages to the end that industry and business will be attracted to Toledo and the prosperity and general welfare of the City of Toledo may be promoted. Said officer shall promote a greater citizen participation in city government and assist in maintaining a cooperative spirit of good morale among city officials and employees. He shall work with and assist any committees or organizations attempting to provide or acquire land for industrial expansion or use. He shall prepare and disseminate information suitable for the newspapers, radio, and television stations, and other communication media serving the community, in connection with the above activities. He shall prepare and furnish such reports in connection therewith as may be requested by the Mayor, Council or City Manager, and perform such other duties as may be assigned by the City Manager in keeping with the purpose of this ordinance."**

(Continued from page 151)

ship residents and to work out special problems. It was made up of public officials involved in the various problems.

Advertisements were designed to put annexation advantages, full-page size, before readers of the city's daily newspapers and various suburban and trade weeklies.

Coupon-clipping was made attractive for persons interested in annexation. Coupons were carried in most of the full-page newspaper advertisements. These were used to recruit persons wishing to annex and to draw up a mailing list for annexation information.

An annexation newsletter was prepared by OPI and sent to its "top interest" mailing list, to business, social, community groups in Toledo. The two-page, legal-size newsletter featured facts, dollar-data, the contention and its refutation on the more usual arguments against annexation. The symbol of clasped hands over the map and seal of the City of Toledo, carried on the masthead of this article, was created for the annexation campaign and appeared on each issue of the newsletter.

Radio and television were utilized for interviews, spot announcements, and appearances by local officials, forums, etc.

Speeches and debates were organized in township areas where annexation petitions were pending.

September was designated as "Know Your Community Month," an idea of the Toledo Area Chamber of Commerce to focus attention on the Toledo area's ten advantages for industrial development as reported in a study by Fantus Research, Inc. The city's OPI went all out to handle its part of the month-long program. Events included:

Ceremonial dedications of the Toledo Central Union Terminal, Expressway Offices (where there was a display of existing and proposed systems), Student Union Building at Toledo's municipal university, cornerstone-laying for a new Engineering-Science Building at the university, dedication of Presque Isle port facilities.

Open houses at several city fire stations (where children could sit in equipment, see firemen coming down the pole, inspect equipment displays); at the Toledo Health Center; at the city's new sewage treatment plant; and at the water filtration plant. Special signs directed motorists to the sites and to parking areas.

Railroad tours over a 28-mile circuit around the city, with commentary on points of interest, were conducted daily, 1:30 to 4:00 P.M.

EVERY ONE CAN SEE THE SAVINGS.....

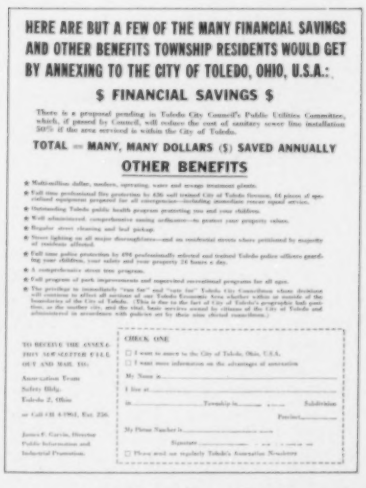
IN MIRO-FLEX

TRAFFIC CONTROL SIGNS BECAUSE THEY LAST SO LONG!

More cost-conscious communities choose **Miro-Flex** — because **Miro-Flex** signs are embossed and quality-finished, to last years longer than ordinary flat-surfaced signs! Embossed design gives extra strength and rigidity — raised letters are easier to read. **Miro-Flex** offers a complete line of street name assemblies and traffic control signs — at prices you can afford. Street name assemblies available in rust-proof steel or aluminum. Write for free catalog, today!

The MIRO-FLEX CO., INC. 1824 EAST SECOND WICHITA 14, KANSAS

Standard Traffic Signs Available for Immediate Delivery at Northeastern Warehouse
Koontz Equipment Corporation, 325 Ohio River Blvd., Emsworth, Pittsburgh 2, Pa.



HERE ARE BUT A FEW OF THE MANY FINANCIAL SAVINGS AND OTHER BENEFITS TOWNSHIP RESIDENTS WOULD GET BY ANNEXING TO THE CITY OF TOLEDO, OHIO, U.S.A.:

$ FINANCIAL SAVINGS $

TOTAL — MANY, MANY DOLLARS ($) SAVED ANNUALLY

OTHER BENEFITS

An annexation advertisement.

They were so popular that tickets for the tours were sold out in advance of the opening dates.

A cartoon booklet, a Steve Roper comic about Toledo and its industrial advantages, was distributed by boy and girl scouts in 150 food stores in the area.

The "We're Strong for Toledo" concert was a colorful, free variety show at the Municipal Zoo Amphitheater, featuring the Toledo Concert Band, the Toledo Choral Society, and local dance groups and entertainers.

Aviation Days were the time for an "Air Age and Business" luncheon for businessmen, a military air demonstration of formation and acrobatic flying, a model powered-plane show, and exhibits of military, business, commercial, and civilian aircraft.

Special exhibits and tours on the "World of Toledo" with 50 recent museum acquisitions from five continents at the Art Museum, Toledo Public Library, Toledo Museum of Art School of Design, various Toledo-Lucas County governmental offices, and selected businesses and industries in the area. Local newspapers contributed full-page ads listing exhibits with the times, size of groups, and length of tours.

Teaming up again with the Toledo Area Chamber of Commerce and the Toledo-Lucas County Port Authority, the city's PR office participated in a week-long event to acquaint the public with the Toledo Port and its new place in the world trade picture. Major attraction during the week was the visit of, and public tours through, eight naval vessels.

Downtown shoppers' mall.

Weekly TV Show

"Your City Reports" is a 30-minute production which has been used to push the city's industrial expansion, annexation, and other city activities. It is prepared by the Office of Public Information and Industrial Promotion.

Surveying its operations to date, Toledo's PR office has:

1. Earned the respect of editors for responsible reporting in the case of the mall. Several hundred letters from editors, seeking additional information, attest the solid news values in that story.

2. Gained the attention of Toledo-area residents through its annexation newsletter and the "Know Your Community Month."

3. Proved to the city council, municipal leaders, and other Toledo development groups the impact which can be made when there is coordinated, and professional, promotion of worthwhile community objectives. ◄◄

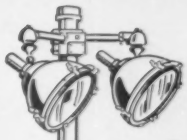
Rockville Wins Street Lighting Award

Mayor Leo Flaherty and Police Captain Peter J. Dowgewicz of Rockville, Conn., (population 10,-100), received a Reader's Digest Public Service award and a $500 check to the community in recognition of its street light improvement program.

In a speech at the Atlantic City, N. J., luncheon, which was held in conjunction with the 28th annual convention of the Edison Electrical Institute, Police Captain Dowgewicz echoed the tenor of a Reader's Digest article that "good street lighting is a most effective deterrent to crime and traffic accidents."

Mayor Flaherty praised the Rockville fluorescent street lighting program as one which has "given us new civic pride, raised our property values, increased our business potential and provided us all with a new feeling of well-being, protection and security. Good street lighting can help increase business activity. Poor street lighting can only hurt it."

"Street lighting is more profitable to us from a public relations standpoint than from a strict net revenue basis," Alfred M. Wade, Sales Vice-President of the Connecticut Light and Power Co., told the luncheon. "To us it is a builder of good public relations . . . it prevents crime and accidents. It increases business and civic pride and it makes communities more attractive places in which to live." ◄◄



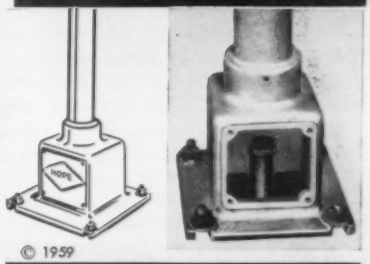
For **LOW-COST OUTDOOR LIGHTING!**
the Original
HOPE
MALLEABLE IRON METAL-PIPE POLE BASE

A Rugged Support for Threaded Pipe Uprights With Chamber for Splicing and Grounding.

Turn galvanized pipe into threaded hub of galvanized base. Top off with fixture. Install over embedded anchor bolts and conduit stubs. Splice and ground through hand-hole. Four sizes: 2", 2½", 3", 4". Plain or 3-pole receptacle cover. Bulletin #25.

CONSULT YOUR ELECTRICAL WHOLESALERS OR PHONE ONE OF OUR AGENTS BELOW!

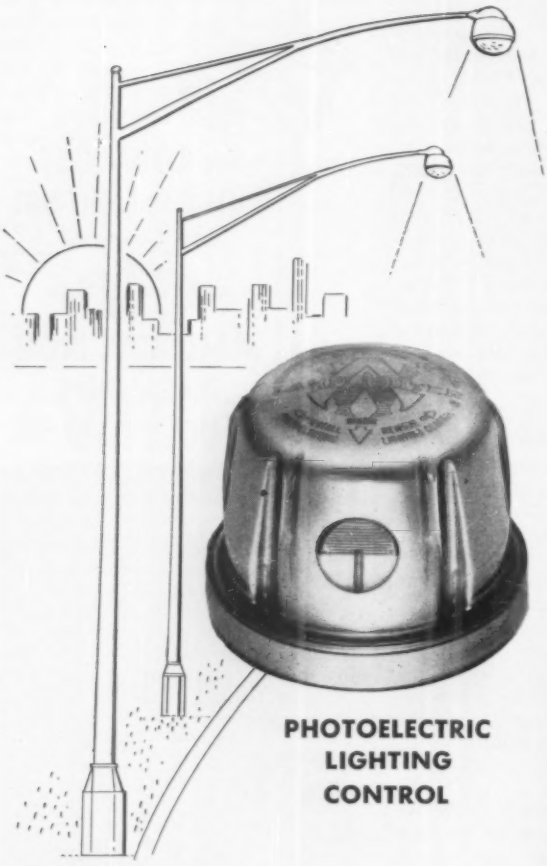
Ala.	Birmingham	ALpine 1-7979
Ala.	Mobile	GReenwood 1-5621
Ark.	Pine Bluff	JEfferson 4-5932
Cal.	Los Angeles	HUbbard 3-7931
Cal.	San Francisco	EXbrook 2-6621
Colo.	Denver	AComa 2-8001
Fla.	Jacksonville	RAymond 5-3671
Fla.	Miami	PLaza 7-1041
Ga.	Atlanta	TRinity 5-4848
Ill.	Chicago	FRanklin 2-9854
La.	Baton Rouge	DIckens 2-2873
La.	New Orleans	TUlane 5207
Mass.	Wellesley	CEdar 5-6815
Mich.	Royal Oaks	LIncoln 3-1384
Miss.	Jackson	FLeetwood 5-8305
Mo.	Kansas City	VIctor 2-8875
N. C.	Greensboro	BRoadway 5-3775
N. J.	Newark	MArket 3-6554
New Mex.	Carlsbad	TUlip 7-2303
N. Y.	Fayetteville	NEptune 7-9205
N. Y.	New York City	BO 9-8845
N. Y.	Williamsville	PLaza 4592
Ohio	Cleveland	PRospect 1-6120
Ohio	Dayton	BAldwin 4-9813
Oregon	Portland	BRoadway 2671
Pa.	Philadelphia	DEwey 4-6800
Pa.	Pittsburgh	LOcust 3-6262
Tenn.	Memphis	WHitehall 8-0496
Tex.	Dallas	RIverside 1-6241
Tex.	El Paso	PRescott 2-2881
Tex.	Houston	CApitol 7-4173
Va.	Va. Beach	GArden 8-3837
Wash.	Bellevue	GLencourt 4-0566
Wis.	Milwaukee	UPtown 1-4900



© 1959

HOPE ELECTRICAL PRODUCTS CO.

53 Long Ave., Hillside, N. J., ELizabeth 4-7837



PHOTOELECTRIC
LIGHTING
CONTROL

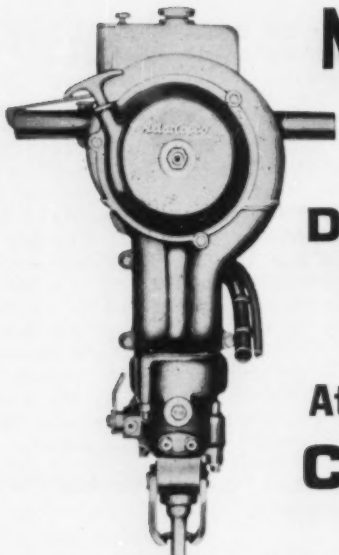
NEW LAMPLIGHTER®

(Series 15,000)

sets a new standard . . meets every industry requirement in ONE control!

Low initial cost plus long life and easy maintenance make LAMPLIGHTER *the* control to meet *your* specific needs. Offers surge and lightning protection, ample time delay, twist lock base, easy handling. Externally adjustable light level from 1 to 10 ft-c., fail-safe, weather-proof. Optional fuse protection. Exhaustive tests prove LAMPLIGHTER'S superior engineering and rugged construction. Write for details about LAMPLIGHTER and complete line of accessory mountings.

The Acme Wire Co.
Utility Products Division, Dept. MP-3
New Haven 14, Connecticut



Now! Get ON-THE SPOT DRILLING POWER . . . with Atlas Copco's COBRA!

World's lightest motor drill!

Here's a drill you use to fill in on those jobs where cost, terrain, or time prohibits sending out a compressor crew. Weighs just 53 pounds; easily carried by one man. Completely self-contained with gasoline engine that drills 50-60 feet of hole on a tankload (2 qts.) of fuel. Drills in any position up to 45°. Perfect for light drilling anywhere. Write for complete literature. Address: Dept. AC-7

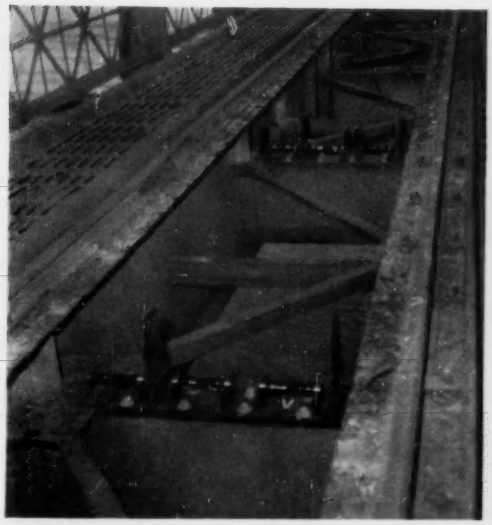
- **One-man operation!**
- **One-man carry; piggyback rig available!**
- **Easy starting—any weather, any altitude!**
- **Multi-use flexibility!**
- **POWERFUL—26 or more feet per hole per hour in hardest granite!**

Atlas Copco

545 Fifth Avenue, New York 17, N. Y.

610 Industrial Avenue
Paramus, New Jersey

930 Brittan Avenue
San Carlos, California



This view shows the ductile iron brackets in place to receive the bottom row of three pipes.

With the bottom row of pipes placed and the rollers in position, the work progresses on the upper three pipes. Note the rails of the old street-car track still in place.

Queensboro Bridge Carries More than Traffic

Utilities as well as traffic must span the rivers, and the problems involved can at times be complicated. Con Edison faced three such problems when it decided to place high-voltage electric cables across the East River via New York's 50-year-old Queensboro Bridge. The cables were placed on two outside street-car lanes recently converted to bus lanes.

One serious problem was that of vibrations set up by heavy traffic. Second was the restricted space in which the cables could be placed. Finally, there was the virtual impossibility of maintenance once the job was complete.

The plan called for the use of grade A steel pipes having a ¼-inch wall and an 8⅝-inch outside diameter to carry the 2,000 MCM cables transmitting electrical energy at 69,000 and 138,000 volts. Each of these cable-carrying pipes has an average weight of approximately 50 pounds per lineal foot. One problem was that of supports to carry the six cables planned for each side of the 3,700-foot run, for they would have to carry a total weight of 300 pounds per foot, allow for expansion and contraction and be maintenance-free. To solve this problem, E. G. Watkins, Con Edison's division engineer, and Joseph Florian, project enginer, discussed the matter with technicians of the Crompton & Knowles Corporation of Worcester, Mass.

Ductile Iron Used

Brackets of ductile iron seemed to be the answer, and after making up a mock model using ASTM standard specification methods and employing radiographic tests, the material and design was adopted. The brackets, cast from molds, eliminated the need of individual fabrication and use of templates for installation. Also, they required no welding, for installing the one-piece bracket was simply a nut-and-bolt situation.

Each bracket weighs 230 pounds and supports six of the steel pipes. Spacing varies from 12 to 25 feet along the full length of the bridge. Ductile iron rollers provide an easy rolling motion during contraction and expansion of the pipes.

A coating of re-enforced polyester resin insulates the pipes from the bridge structure and provides protection against stray electric current resulting from other services on the bridge. An epoxy resin coating re-enforced with glass mesh, 20 mils in thickness, eliminates future maintenance on the pipes, while the ductile iron castings have corrosive resistance equal to cast iron.

On completion of the installation, a roadway covered the pipes, with openings 260 feet long near each end of the bridge to provide access for future cable splicing.

When completed, the bridge will carry not only truck, bus and auto traffic, but enough electricity to serve a community of 1,500,000 inhabitants. ◄◄

CUT COLLECTION COSTS with UNMATCHED BIG SIX PERFORMANCE

Greatest operating economy starts with lowest maintenance costs and most productive time . . and the Load-Packer 600 delivers economy proof in every one of its BIG SIX performance features.

1. **FASTEST OPERATION**—Crew starts reloading in just 4 seconds . . . full cycle takes only 10 seconds.
2. **GREATEST COMPACTION**—Direct thrust compaction packs more per yard than any competitive unit.
3. **BIGGEST LEGAL PAYLOADS**—Biggest loads on any given chassis for two reasons. First, dead weight is cut to a minimum; second, telescopic hoist eliminates heavy subframes and improves weight distribution.
4. **LARGEST LOWEST HOPPER**—Big 1½ cubic yard, 74 inch wide hopper, plus low loading height.
5. **SAFEST, MOST DEPENDABLE**—Controls are simple, foolproof. Operator has positive control. Fewer moving parts, less linkage, few adjustments.
6. **GREATEST ECONOMY**—Biggest hopper and fastest packing cycle cut fuel costs and equipment wear.

Start cutting collection costs now by having your GarWood-St.Paul truck equipment distributor tell you more about the Load-Packer 600 . . . with exclusive BIG SIX performance.

Punched Tape Helps Lift Work Load

By **DAVID W. OYLER**, Clerk
District Court, Denver, Colo.

Leo Henry examines the punched-tape recorder that captures records as the figures are entered in the keyboard of the office register.

A modern data-processing system for documenting huge court fees, fines, alimony and support payments, came at just the right time to handle a swollen volume of these in the cashier's division of the district court in Denver, Colo. Colorado's capital has undergone an overwhelming population increase. The load on the cashier's division was such that the need for hiring extra personnel was impending; as was also the unpleasant prospect of long overtime hours.

Number one on the transactions list was the large increase in alimony and support payments. Regular alimony payments are received and the court's own check is issued for the support amount. All records concerned are handled in return for an initial fee of $5 which covers the litigant's costs thereafter. The court is currently handling between 3,000 and 4,000 checks every month, all of which must be processed, validated, recorded, mailed, and documented against error.

Typical of the cumbersome methods which existed was that alimony payees at one time had to furnish the court with self-addressed, postage-paid envelopes before the check could be mailed. Now, through the twin benefits of cash register receipting and punched-tape accounting, addresses are printed directly on every check.

The first objective when city and county officials first began considering automation was to eliminate manual operations. The second was to set up an automatic means of handling large sums of money received in small amounts under 72 classifications; to produce automatically four daily journals which show the ultimate disposition of every dollar received and to keep the same kind of records on disbursements. It was also desired to furnish a series of daily journals which contain information which the department itself, its superior courts, or city governmental personnel may require. It was a tall order.

Automated System

The system begins with a National Cash Register office register which has a punched paper tape recorder linked to it. As transactions are entered in the keyboard of the parent machine, the data is captured automatically in a narrow strip of paper tape. The punched tape is forwarded to the city and county data-processing department, where it is automatically converted into record cards, check-issue cards, the checks themselves, and the reports which are furnished daily to the cashier's division.

The office register, a permanent part of the service counter, incorporates 16 classifications totals, with room for additional totals as they are needed. In one operation the machine prints the amount of the fee on any source document or legal paper, and also the date, serial number, tender, case number, classification, amount, and the cashier's identifying symbol.

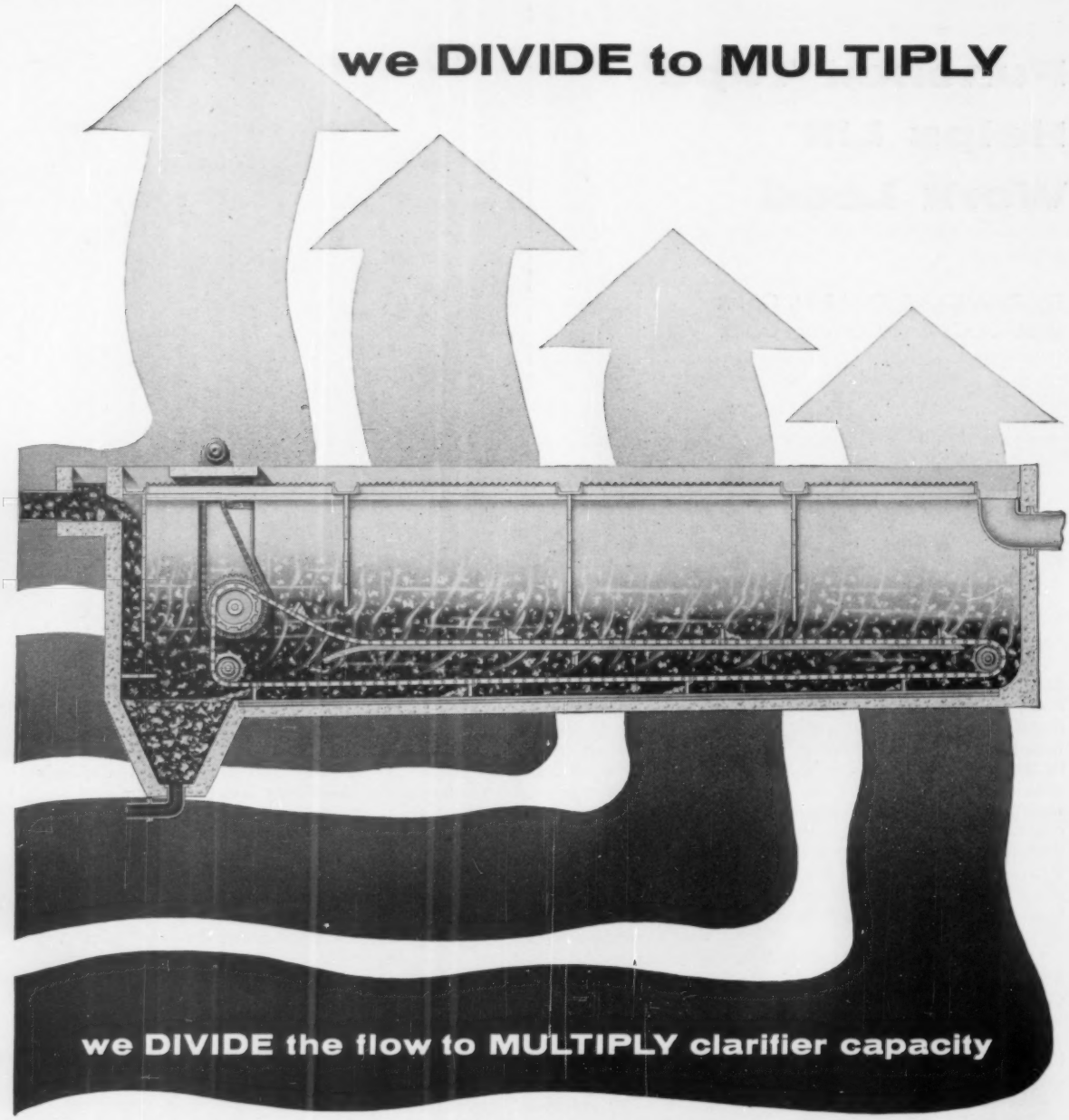
The same information on the receipt and on the validation is captured on an audit tape which carries an item-by-item running account of the day's business.

The tape recorder is housed in a compartment directly below the cash register. The recorder automatically punches out all of the information which appears on the receipt given to the payer and on the audit tape of the cash register, for transmittal to the data processing department below. While the audit tape supplies a visual reference on all accounts and transactions during the day, it is the perforated tape which carries the information to the IBM card punch machines in the data processing department. The accuracy of the system depends on the perforated tape which, in continuous use for more than half a year, has never allowed an error to slip by.

A Colorado statute requires a breakdown of docket fees by individual receipts and case numbers. This monthly report was formerly made by pen and ink and often took as much as four days to pre-

(Continued on page 159)

we DIVIDE to MULTIPLY



we DIVIDE the flow to MULTIPLY clarifier capacity

Rex Verti-Flo not only increases the clarifying capacity of tanks up to four times; it provides a far clearer effluent. The savings in equipment and construction costs are obvious. Here's how Verti-Flo does it: The unique design of Rex Verti-Flo Clarifier transforms the conventional horizontal-flow tank into a vertical-flow tank...utilizing the *full volume* of the tank and *minimizing short-circuiting*. This is accomplished by a system of collecting troughs, weirs and partitioning baffles which divide the large, horizontal settling zone into a series of small, vertical-flow cells. To assure maximum flow length and control, the weirs are adjustable entirely around the periphery of each cell.

Installed in existing tanks, Verti-Flo can be at least double the capacity of the tank...in new installations, Verti-Flo provides up to four times more capacity so that smaller basins can be used with considerable savings in both equipment and construction costs.

For information, write CHAIN Belt Company, 4648 W. Greenfield Ave., Milwaukee 1, Wis.

REX®

CHAIN BELT COMPANY

(Continued from page 157)

made by pen and ink and often took as much as four days to prepare. The mechanized system requires only minutes to prepare it.

The system has completely eliminated the posting of a daily receipt journal manually from the duplicate receipts issued at the counter. This formerly required four hours as did the hand posting of a daily disbursement journal. Now neither of these operations is required at all, since the figures involved are punched in the recorder tape, and are processed by machine, compiled into the ultimate report, and delivered along with the day's batch of alimony-support checks.

The data processing department has the objective of producing four major reports daily:

1. **Daily Cash Journal**
2. **Daily Classification Journal**
3. **Check Register**
4. **Checks List**

In addition, the department also posts payments to existing cases and prepares new master cards where new cases arise.

Along with the hard-cash value of saving from 40 to 50 hours of work which formerly went into hand posting each month, the system has brought much-needed flexibility into the operation of the Cashier's Division. ◄◄

Phoenix Awards Composting Contract

A recently awarded contract between the City of Phoenix, Ariz., and the Arizona Biochemical Company calls for construction of a 300-ton-per-day composting plant to be in operation by the middle of 1961. This same contract also provides for the construction of two additional plants of the same capacity at later dates upon sites yet to be selected. All plants are to be financed by the company.

The contract calls for the city to pay a fixed fee for each ton of refuse it delivers to the composting plant, with a minimum annual payment of $103,750. However, beginning with the 13th month of plant operation, the city will receive a percentage of the gross sales with a specified minimum amount. At the end of 20 years the plants revert to the city without cost. Under this system, the city expects to cut its cost of refuse disposal now being carried out by the sanitary landfill method. Operating costs of the present landfill are expected to total over $240,000 during the year 1960-61.

Refuse hauling costs also will be reduced because the plants can be more evenly spaced than are the remaining sites which could possibly be used for landfill.

The Arizona Biochemical Company will use the Dano process of composting. In the Dano system, decomposting takes place inside a huge revolving cylinder, with temperature and moisture controls used to speed up the process without creating obnoxious odors.

Although this process has been successfully used in full-scale plants in numerous foreign countries, the Phoenix plant will be the first commercially operated one constructed in the United States. A pilot plant using this process has been successfully operated in Sacramento, Calif., for several years.

RAY W. WILSON
City Manager
Phoenix, Ariz.

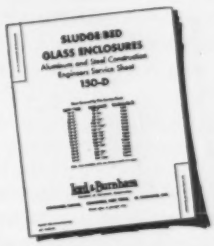
Glass Covers
FOR
SEWAGE TREATMENT PLANTS

LIFETIME ALUMINUM CONSTRUCTION

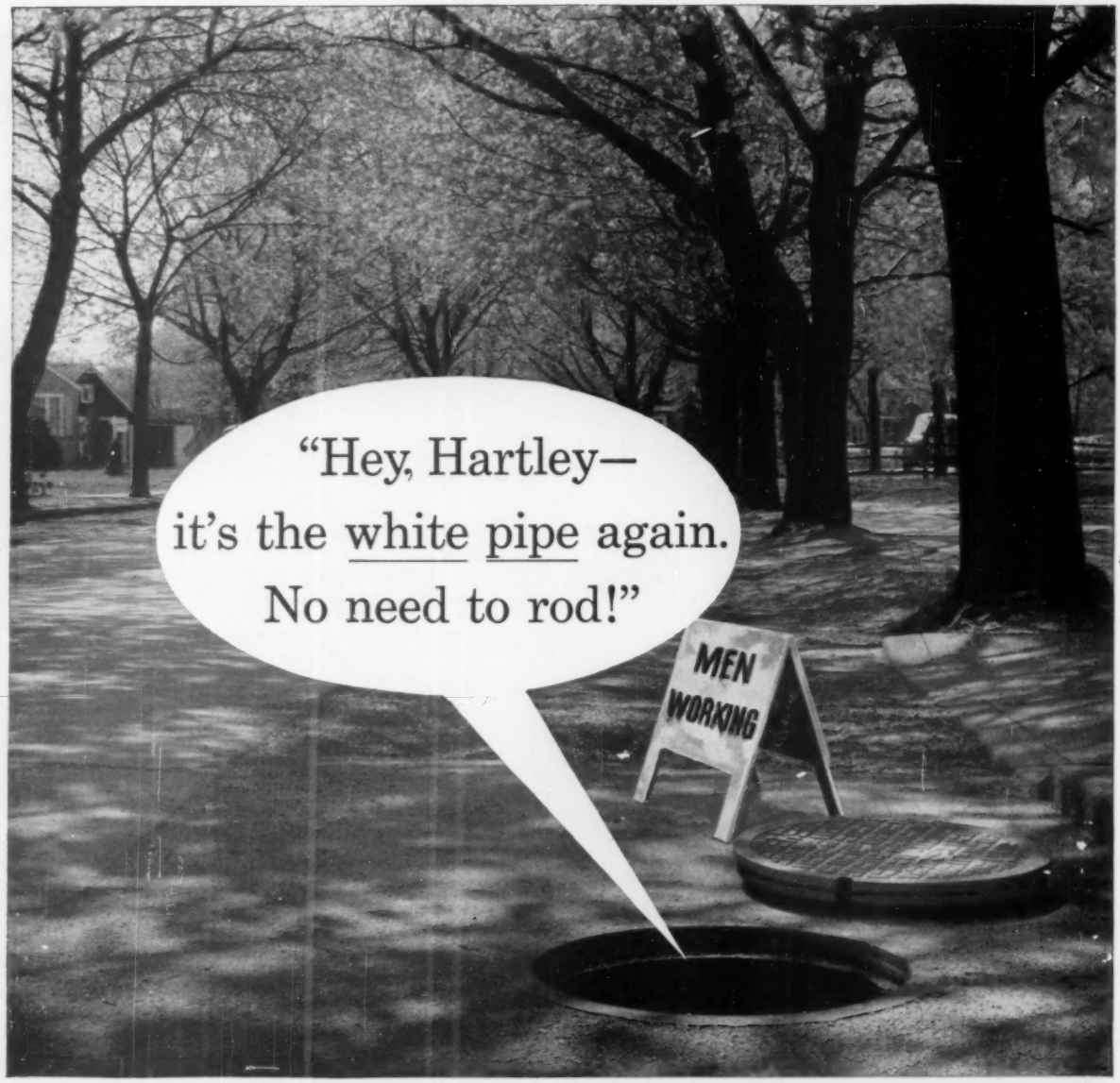
Now available in lifetime aluminum construction with supporting steel framework. For sludge beds, sprinkling filters, tanks or wherever a glass cover is needed.

WRITE FOR NEW VALUABLE
ENGINEERS' SERVICE SHEETS

Write today for your new set of Engineers' Service Sheets AC-1060 containing details, specifications and recommendations for every job request.



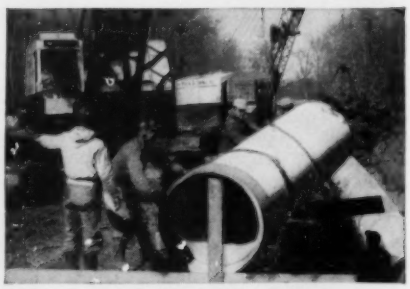
Lord & Burnham
DIVISION OF BURNHAM CORPORATION
IRVINGTON, N. Y. DES PLAINES, ILL.



Right! There's no rodding necessary because roots just can't get in and clog up Transite®, *the white sewer pipe.* Johns-Manville's patented Ring-Tite® Joint keeps out even the thirstiest of these system disrupters. And it remains impenetrable for the duration of the line. Remember, by keeping roots out you eliminate the major cause of expensive periodic cleanouts . . . an expense which can run over $2,000 annually per mile of pipe in a system having joints that are not tight.

Actually, Transite starts saving you money from the very beginning. Its long length and light weight make this asbestos-cement pipe easy to handle in trucking, moving and lowering into the trench. Once in the trench, Transite adjusts easily and speedily to accurate line and grade. And that Ring-Tite coupling makes a dependable joint quickly and effortlessly. You'll save on operation costs too, because Transite's low coefficient of friction ($n = 0.010$) means faster flow and shallower trenches.

Hartley knows what he's talking about when he says that Transite can cut *your* sewer system costs. Get all the details on Transite, the white sewer pipe. Write Johns-Manville, Box 14, AC-2, New York 16, New York. In Canada: Port Credit, Ontario.



JOHNS-MANVILLE
TRANSITE PIPE

JM

This is one of four metered off-street parking lots in Clayton.

We Know Where We're Going

Clayton, Mo., maps out a city planning program and lives up to it

By **CLIFFORD W. O'KEY**
City Manager

A new eight-story hotel arises illustrating the added height that is allowed in return for open landscaped area.

In 1958 Clayton adopted a formal master plan for future city development, and in April 1959 the city revised its zoning ordinance. These two events marked the completion of a critical analysis of where we were heading as a city.

Clayton is a residential suburb of St. Louis, the county seat of a mushrooming county, and the home of three colleges. It is also located astride major east-west routes of travel and is in the center of the north-south axis of the county. It has had branches of large downtown St. Louis department stores since the late 1940's.

Problems of Growth

Following the initial retail commercialization, major corporations located home administrative offices in Clayton. However, with each new office building proposed, new problems concerning parking, set back, height restrictions and traffic volumes engendered the wrath of the adjacent and not-so-adjacent residential property owners.

Adoption of the Council Manager Plan was a first step taken by the people of Clayton. Very wisely they included in the new charter provision for a Plan Commission with sufficient powers to control commercial land uses. The first Board of Aldermen elected under the new charter appointed a Plan Commission of six community leaders, three of whom had served as members of the Charter Commission, with the City Manager as an ex-officio voting member. For its first order of business, this group prepared a commercial land use plan guided by the following principles:

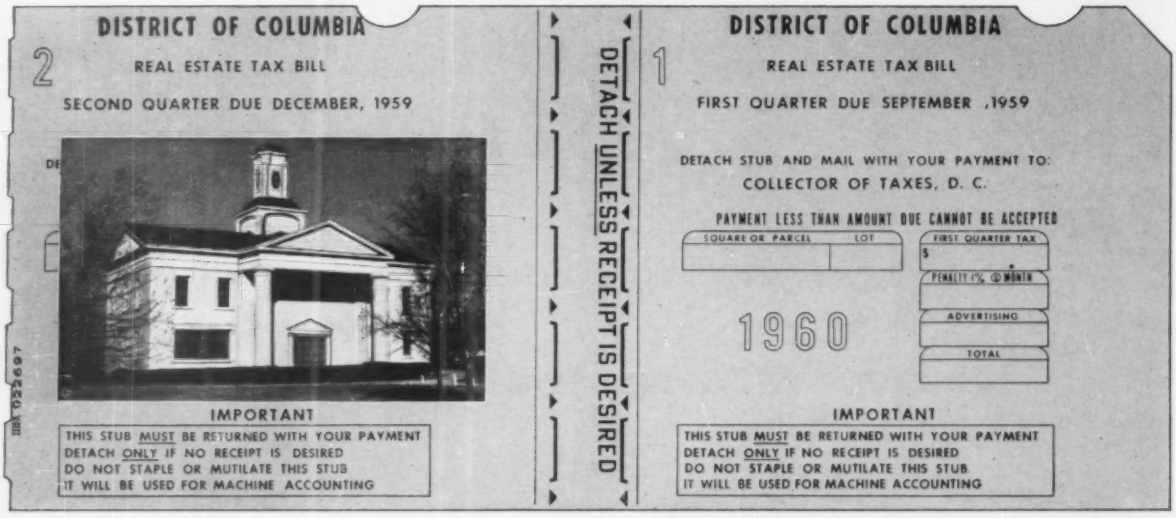
1. Intensity of land use must be related to the capacity of access roadways to accommodate the traffic volumes generated by commercial development.

2. Off-street parking in conjunction with any commercial structure must be provided by the developer at a minimum ratio of 1-1, or one parking space for each 300 square feet of building area.

3. Municipal parking meter income must subsidize provision of off-street parking facilities to meet the existing parking space deficiency inherited because of the lack of off-street spaces to support existing strip-type retail land use, and to absorb the excess space requirements occasioned when the mini-

(Continued on page 163)

Solution to a taxing problem!


DISTRICT OF COLUMBIA
2
REAL ESTATE TAX BILL
SECOND QUARTER DUE DECEMBER, 1959
IMPORTANT
THIS STUB MUST BE RETURNED WITH YOUR PAYMENT
DETACH ONLY IF NO RECEIPT IS DESIRED
DO NOT STAPLE OR MUTILATE THIS STUB
IT WILL BE USED FOR MACHINE ACCOUNTING
DETACH UNLESS RECEIPT IS DESIRED
DISTRICT OF COLUMBIA
1
REAL ESTATE TAX BILL
FIRST QUARTER DUE SEPTEMBER ,1959
DETACH STUB AND MAIL WITH YOUR PAYMENT TO:
COLLECTOR OF TAXES, D. C.
PAYMENT LESS THAN AMOUNT DUE CANNOT BE ACCEPTED
SQUARE OR PARCEL
LOT
FIRST QUARTER TAX
$
PENALTY 1% @ MONTH
ADVERTISING
TOTAL
1960
IMPORTANT
THIS STUB MUST BE RETURNED WITH YOUR PAYMENT
DETACH ONLY IF NO RECEIPT IS DESIRED
DO NOT STAPLE OR MUTILATE THIS STUB
IT WILL BE USED FOR MACHINE ACCOUNTING

Low-cost IBM Series/50 punched card system brings automatic control to your fiscal accounting.

Today the many benefits of modern punched-card accounting are within the reach of every municipality. The IBM Series/50 is a **complete** accounting system—the same in basic design and operation as IBM equipment used by larger government units—but built for smaller volumes, priced for smaller budgets.

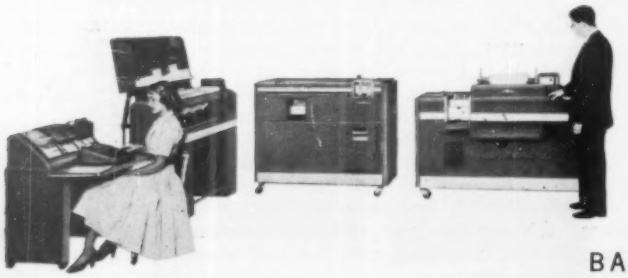
In tax accounting, for instance, the Series/50 gives you — in a single punched card recording — all the data you need to:

• Calculate tax bill • Prepare alphabetic and geographic tax rolls • Write statements • Credit account when payment is received • Bill past-due accounts.

The same Series/50 will also process your payroll, utility billing, disbursement accounting; your police, health and welfare, and education records.

Changing over from present methods is safe and sure . . . because IBM Balanced Data Processing goes far beyond the machines. You also get the services of experienced specialists to assist you in planning your system for maximum utility now and in the future . . . to thoroughly train your personnel . . . and to keep your system operating at peak efficiency.

For full details, call your local IBM representative.



IBM®

BALANCED DATA PROCESSING

One of the streets before improvement.

Here is the way it looks now.

(Continued from page 161)

mum 1-1 ratio of parking area to building area does not meet the actual space requirements of varied building tenancy.

4. Residential land uses in commercial zones should be prohibited.

5. Height restrictions with minimum side-yard and set-back requirements will promote unimaginative and stereotyped architecture. Encouragement of open areas by giving height and area premiums for open landscaped front and side yards will have a salutary effect upon business area appearance.

6. Parking lots, private or public, need not be eyesores constructed as an afterthought following building development.

7. The municipality must and does have every right to exercise control over district aesthetics in the same large measure that we exercise control over land usage.

8. A study of land economics should receive more than passing attention when relating allowable living units to lot area at specific high-valued land locations.

9. Utilizing special off-street parking-permit powers that allow a non-conforming land use under stringent conditions of lot improvements will help alleviate an immediate parking space deficiency.

Having accepted this framework of reference, the Plan Commission initiated the following actions, which were subsequently adopted by the Board of Aldermen.

a) Repealed a waiver of providing off-street parking structures erected in what was the original business district. The authors of this waiver had hoped that such a provision would encourage redevelopment of the area. No redevelopment occurred and the area is now subject to the same requirements as other areas with the added requirement that should any existing structure be enlarged in an area exceeding 20% of the area of the original building, off-street spaces must be provided for the entire structure in a 1-1 ratio. Suffice to say this requirement has not encouraged redevelopment; however, neither has it encouraged building that would add to the already serious parking deficiency there.

b) Processed, after public hearings, four special off-street parking-permit applications that allowed private development, to very high improvement standards, of parking areas that added 450 spaces to serve existing buildings.

c) Dedicated all income from on-street parking meters and existing off-street lots to an off-street parking fund to finance additional off-street facilities as well as roadway improvements and traffic-movement control facilities.

d) Adopted a program to provide 436 additional public parking spaces through the issuance of $750,000 in Parking Facility Parking Revenue Bonds.

e) Adopted a zoning ordinance that:

1. Incorporated the bulk-zoning concept into commercial land-use controls that encouraged open areas by allowing added building areas and added building height.

2. Restricted intensive retail usage and encouraged office buildings by restricting retail usage to not more than 10% of building area.

3. Created a new residential zone designed for high-rise apartments and incorporated the bulk-zoning-concept provisions in the district regulations.

4. Related sign size to building size for both large and small buildings as opposed to standard sign size restrictions in effect theretofore.

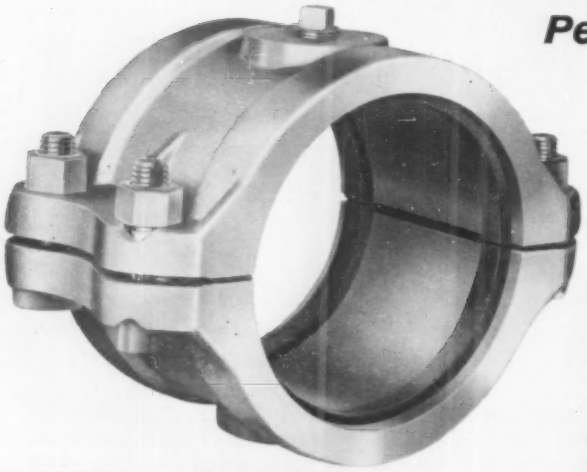
f) Established an architectural review board with power to approve exterior surface treatment of building proposed to be erected adjacent to public facilities.

Acceptance of the exercise of these powers has in most cases met with most favorable response from developers, in other cases with not so kindly a response. Legality of the requirement of off-street parking has been upheld by the courts; appeals from the requirements have met with no more favorable a response from the city's own Board of Adjustment. A present court test challenges the city's power to withhold occupancy permits for an office building whose owners converted space originally allocated for parking to office use.

Although not conclusive, we have

(Continued from page 165)

NEW CLOW
Ductile Iron Split Sleeve



Permits easier, quicker, permanent repair of 4", 6" & 8" transverse cast iron pipe underground breaks

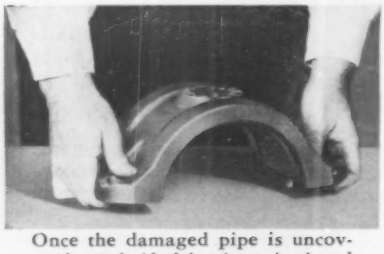
LIGHT WEIGHT Assembled 4" diameter sleeve weighs but 26 lbs. Weight of 6" sleeve is 32 lbs., 38 lbs. for 8" sleeve.

SHORT LENGTH Effective length of 4 inches between end seals on all sizes. Overall length is 6¼".

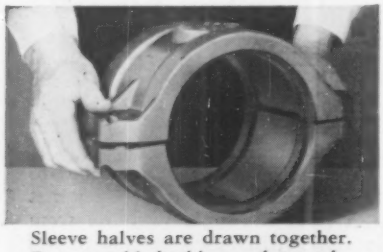
TWO-PIECE ASSEMBLY No end glands. Side and end gaskets are pre-assembled and cemented in sleeve grooves.

HIGH STRENGTH All parts are high tensile and corrosion-resistant. Sleeve halves are 70,000 psi tensile ductile iron. Nuts and bolts are high strength, corrosion-resistant alloy.

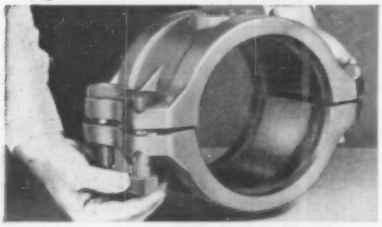
ASSEMBLED IN 3 EASY STEPS



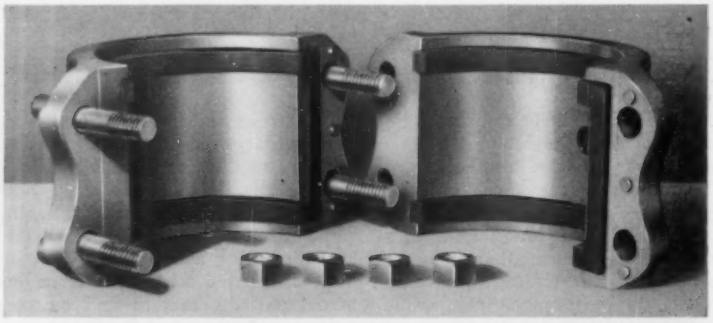
Once the damaged pipe is uncovered, one half of the sleeve is placed on each side of the pipe.



Sleeve halves are drawn together. Pre-assembled rubber gaskets make tight seal.



After the bolts are taken up finger-tight, tightening the four bolts by wrench completes assembly.



HERE'S ALL THERE IS TO IT! Illustration shows two-piece glandless construction. Side gaskets overlap ends of circumferential gaskets for tight seal. Four bolts are only accessories. Tapping boss on each half allows maximum tap of 2 inches. Regularly furnished with one sleeve-half tapped for ¾" pipe.

JAMES B. CLOW & SONS, INC.

201-299 North Talman Avenue • Chicago 80, Illinois

Subsidiaries:
Eddy Valve Company, Waterford, New York
Iowa Valve Company, Oskaloosa, Iowa

(Continued from page 163)

Although not conclusive, we have had sufficient experience with the administration of a zoning ordinance drafted to effectuate our plan to make these conclusions:

1. Our off-street parking program has had two laudable results: a) provided sorely needed all-day parking areas and made considerable curb space available for short-time parkers; b) has removed a considerable amount of land from the possibility of commercial development and augers well for the capability of our access routes to handle potential traffic volumes, at least until by-pass routes are available for traffic not destined for the commercial area.

2. Strict enforcement of private parking lot improvement and maintenance standards engenders voluntary improvements and maintenance improvements.

3. Off-street parking is no cure for on-street traffic congestion; in fact, availability of adequate parking space will encourage more traffic to enter the area. In our case the flexible progressive traffic signal system timing is subjected to periodic checking and revision. For the past three years traffic volumes have increased an average of 25% per year. On-street meter income has increased from $66,000 to $140,000.

4. Controlled commercial land use and insistence upon integrated parking-area planning will receive support of adjacent residential property owners.

5. Business street landscaping and landscaped set-back areas around commercial structures initially developing a business block set the standard of development for structures that follow.

6. Advertising sign size control is more effective related to location and type of building tenancy rather than by zone classification.

Under Consideration

Currently under consideration are zoning ordinance amendments that would prohibit partial conversion of non-conforming uses in commercial zones, i.e., a non-conforming residential use could not be converted partially to a business use but the owner would be required to make a complete conversion with the necessary commercial-use parking available or no conversion at all.

By further classifications of commercial zones, now under study, the Commission hopes to promote buildings on lots with added open land-

(Continued on page 169)

Mailing scale let you down?

Old-fashioned scales are like old chickens—they get tough or tired. The tough scale underweighs, *and your letters arrive "Postage Due"—annoying your correspondents, and earning ill will for you.*

The tired scale overweighs, *and wastes postage. At 4¢ first class, and 7¢ airmail, a few extra stamps a day can run into a sizeable loss in a year.*

Either way, you can't afford a scale that isn't accurate.

Get a precision Pitney-Bowes Mailing Scale. No springs—but an automatic pendulum mechanism that holds its accuracy year after year. The hairline indicator registers instantly and exactly—doesn't waver. The large chart markings and big figures are easy to read, make weighing faster, easier. Avoid errors, save postage.

Seven models to choose from, including an international rate scale and a 70 lb. capacity scale for parcel post. Ask the nearest Pitney-Bowes office to show you. Or send coupon for free illustrated booklet.

FREE: *Handy desk or wall chart of postal rates, with parcel post map and zone finder.*

Pitney-Bowes
MAILING SCALES

Originator of the postage meter... 139 offices in U.S. and Canada

PITNEY-BOWES, INC.
8581 Walnut Street
Stamford, Conn.

Send free booklet ☐ *rate chart* ☐

*Name*_____

*Address*_____

1961's GREATEST SHOW ON WORTH!!!

1961 CHEVROLET STURDI-BILT TRUCKS! PROVED WORTH MORE BECAUSE THEY WORK MORE

A gigantic advance in trucking began just a year ago, when the first Torsion-Spring Chevy nosed out onto a highway. With a vastly different truck design, featuring torsion-bar independent suspension, this totally new Chevy did just about everything better. And it caught on fast. So fast, in fact, that already there are nearly 300,000 Torsion-Spring Chevies putting out this new kind of working ability on tough jobs all over America. Now, for 1961, Chevrolet introduces trucks with even more of the worth-more, work-more performance that's won such wide owner acclaim over the past year. Even more strength, even more stamina—and an even wider range of models!

MORE MODELS THAN EVER BEFORE! 189 models—work-proved dollar savers in every weight class! 1961 Chevies for every hauling chore in the book include three new long-wheelbase 4-wheel drive models, sturdy Stepside and Fleetside pickups, spacious panels, versatile Suburban Carryalls, handy Step-Vans and forward control chassis, tough chassis-cabs of all sizes, mountain-moving tandems. Somewhere in this long, *long* line is the one truck that makes the most sense on your job!

OWNER-PROVED TORSION-SPRING RIDE! It puts an end to I-beam axle shimmy! Independently suspended front wheels step right over bumps, tough torsion-bar springs soak up jolts. New smoothness speeds up schedules, cuts truck wear and maintenance expense, reduces cargo damage and driver fatigue. Owners report that there's never been anything like it for high-profit hauling!

STRONG, ROOMY CABS THAT HELP BOOST YOUR WORK OUTPUT! Rangy drivers ride in comfort with extra hip room, leg room and head room. Seeing is safe and easy through a whopping big wraparound windshield. The seat's a beauty, too—a full 59½" wide with a spring combination inside that gives just the right support. (And for the last word in working comfort, special 6" foam rubber padding is optional at extra cost.) And the *rugged* cab build includes all-steel construction, double-panel roof and double-walled cowl housing.

TOUGH TRUCK CHASSIS—BRAWNY BASIS FOR BIGGER PROFITS. Massive, truck-built frames add stamina to every chassis. In medium- and heavy-duty models, rugged self-adjusting variable-rate rear springs help smooth out big-tonnage hauls. Quality features galore boost truck life: Extra-big brakes give faster, surer stops and last longer. Precision wheel balance makes steering easier, lengthens tire life. Smooth, durable Synchro-Mesh transmissions come in sizes to suit all types of duty.

ENGINES WITH PROVED EARNING POWER. Famous sixes that out-sell all others because they're best at brightening cost records . . . big V8's that lead the industry for short-stroke design and hard-working durability! Chevy for '61 offers a *long* line of power plants to meet the special needs of every weight class.

The truth is, we could fill every page in this magazine with reasons why Chevrolet trucks have never been better than they are for '61, but there's no need for that. Not when your Chevrolet dealer can boil it all down for you so quickly and pleasantly. See him soon and start saving soon! . . . Chevrolet Division of General Motors, Detroit 2, Michigan.

CHEVROLET

LARGEST CONCRETE-PIPE
MADE IN CANADA
10 FEET DIAMETER
by CANADIAN MARIETTA (ONTARIO) LIMITED
ST CATHARINES - TORONTO - CHATHAM
FOR HUMBER SEWAGE TREATMENT PLANT

Contractor: Dravo of Canada, Ltd., Toronto.
Engineers: James MacLaren & Associates, Toronto.

It's king-size for Canada, but commonplace in the United States—this 16-foot section of 10-foot diameter precast concrete pipe.

Joined by "Pressure Proven" rubber and steel AMSEAL Joints to provide a positive, water-tight seal against infiltration or leakage, over 2000 feet of the 120″ pipe is used in the Toronto subacqueous outfall sewer. Other sections include lengths of 108″, 96″, 84″, 72″ and 54″ diameter pipe.

American-Marietta's up-to-date facilities, strategically located throughout the country, assure prompt and regular deliveries. Long lengths speed installation, too, by reducing handling and joint making.

Write today for descriptive literature. Let us know if our technical staff may be of service in helping to solve your pipe problems.

AMERICAN-MARIETTA COMPANY
CONCRETE PRODUCTS DIVISION
GENERAL OFFICES:
AMERICAN-MARIETTA BUILDING
101 EAST ONTARIO STREET, CHICAGO 11, ILLINOIS, PHONE: WHITEHALL 4-5600

(Continued from page 165)

scaped area in return for added height allowed.

Construction of office buildings, high-rise apartments and hotels continues apace. It is becoming increasingly apparent that protective and effective commercial land-use controls with an effective assist from the city in meeting the parking space deficiency has attracted investment capital to office building construction. With off-street parking fund income in excess of 2.5 times the debt-service requirements of the Parking Revenue bonds, the city can accumulate reserves for additional parking on land purchased and already improved.

Delineation of the limits of commercial land use, together with architectural and improvement controls, helps to assure adjacent residential owners that commercial land uses can complement the city's residential character. ◄◄

Pittsburgh Honored as City of the Decade

Pittsburgh won special recognition as the "City of the Decade" at the recent meeting of the American Society of Landscape Architects. The award was based on a pre-convention survey of leading landscape architects throughout the country and was presented by the New York Chapter. Los Angeles, New York, and Philadelphia also earned heavy support in the survey. Other cities mentioned were Atlanta, Boston, Chicago, Dallas, Detroit, Fort Worth, New Haven and Norfolk.

Pittsburgh was cited for "boldness in concept and skill in execution" of its long-range urban renewal and redevelopment program. Special reference was made to the city's smoke-control program and to the development of the Golden Triangle that has risen in a former slum area. The city also received praise for coordination of its private and public interests operating under governmental administration.

Los Angeles won praise for its ability to cope with its unique population pressures during the past ten years. Its system of freeways and downtown redevelopment program also earned special mention.

New York was praised for its "dedication to open-space planning" as characterized by the setbacks of new buildings on Park Avenue, and the broad application of light, air and space to projects such as Idlewild Airport, the United Nations, and the planned Lincoln Center for the Performing Arts.

Philadelphia was cited for its comprehensive planning and careful neighborhood analyses. Singled out for special praise was the city's creation of the open space, such as the mall at Independence Hall, without sacrificing its historical monuments. ◄◄

Why Not Forget What Garbage Is?

Trash and garbage have been a plague to mankind ever since the day Eve tossed away the first apple core. The problem in urban areas is what to do about garbage.

Even this problem has "exploded." A great migration and a revolution in land use are destroying old patterns of life.

As soon as cars became plentiful after World War II our great centers of population began feeding settlements along the radial highways, poking deeper and deeper into the hinterland. Soon these clusters ran together until the overflow from one central city began to blend and merge with that of another many miles away. And each new development heaped more misery on the poor garbage collector.

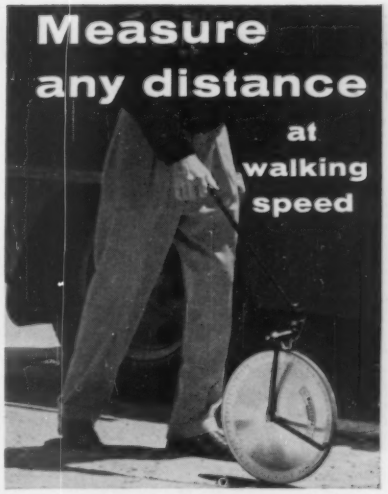
A dozen years ago Philadelphia removed its refuse in horse-drawn wagons, dumping in the south end of town. These dumps were afire day and night. When urged to modernize, the city fathers put rubber tires on the wagon wheels. But today a $100,000,000 food center stands where the dumps were.

A new era of public sanitation is emerging, typified by the garbage-free community.

The plan—most recently adopted by Denver and Columbus, Ohio—provides for installation of food waste disposers in residences and commercial food service establishments. Said to be completely garbage-free are Broomfield Heights, Colo., New Whitehead, Ind., and Jersey Village, Tex. Food waste disposers are installed in 3,275,000 kitchen sinks throughout America.

HENRY N. FERGUSON
Assistant General Manager
Board of Commissioners
Port of Brownsville, Tex.

Measure any distance at walking speed



records 100,000 ft. *automatically!*

It's So Easy to measure with a Rolatape ...and you save time on every estimating job...no tapes to wind, no helper is required. You get precision-accurate measurements every time.

Records Feet automatically and the accumulated total is always in full view.

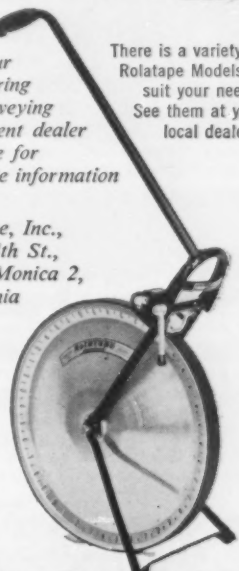
Shows Inches, and Fractions of an inch. Wheel is calibrated in inches and fractions for quick easy reading.

Shows Tenths of a foot. Wheel is calibrated in tenths on reverse side for engineers.

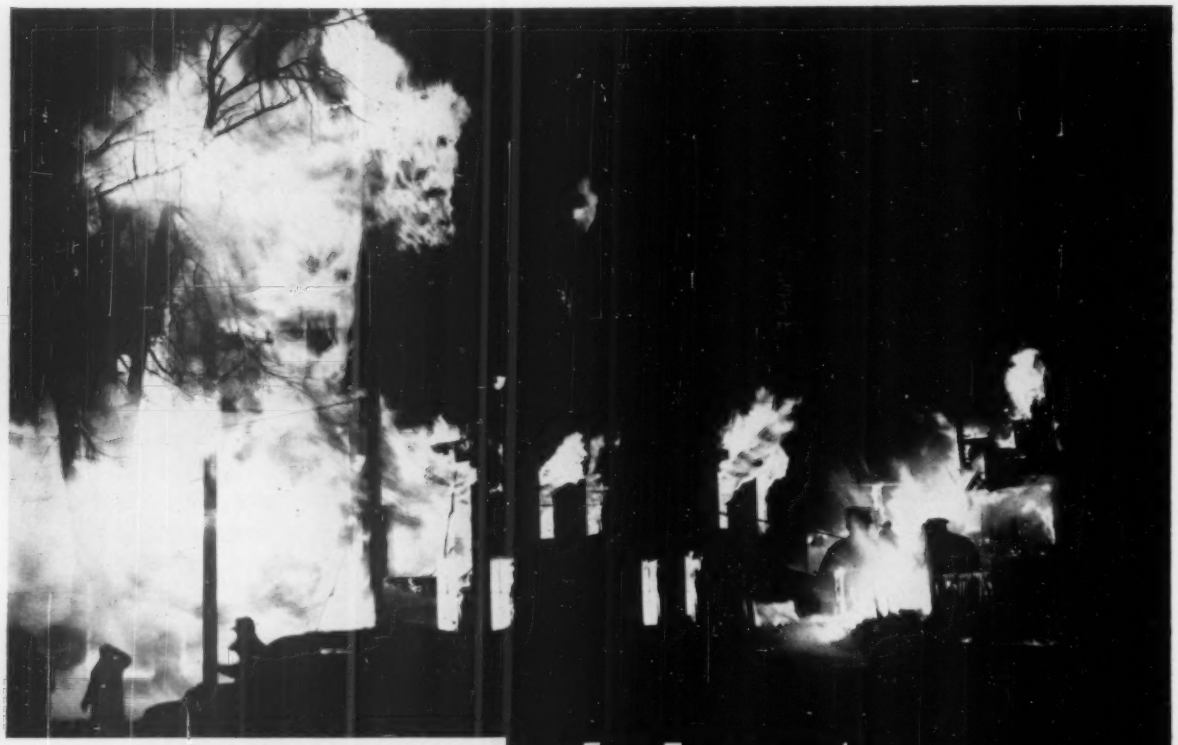
See your engineering and surveying instrument dealer or write for complete information today!

Rolatape, Inc., 1741 14th St., Santa Monica 2, California

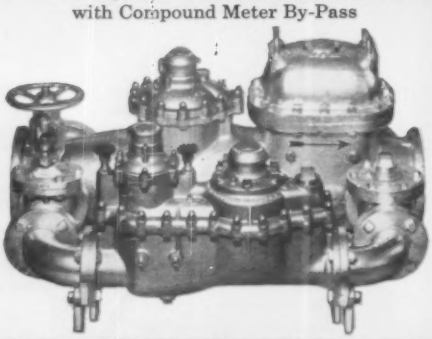
There is a variety of Rolatape Models to suit your needs. See them at your local dealers.



Rolatape
Measuring Wheels



Hersey Detector Meter Model FM
with Compound Meter By-Pass



For Emergencies:
INSTANT, UNIMPEDED WATER FLOW

For Revenue:
ACCURATE MEASUREMENTS OF ALL RATES OF FLOW

You get both with a

HERSEY

DETECTOR (FIRE SERVICE) METER

Listed as standard under the re-examination service of Underwriters' Laboratories, Inc. and approved by Factory Mutual Laboratories for use in Factory Mutual insured properties, also listed by Underwriters' Laboratories of Canada.

Hersey-Sparling
Meter Company
HERSEY PRODUCTS
DEDHAM, MASSACHUSETTS

Branches: Atlanta, Boston, Chicago, Cleveland, Dallas, Denver, Kansas City, Mo., Los Angeles, New York, Philadelphia, Portland, Ore., San Francisco, Seattle.

Philadelphia's Mayor Richardson Dilworth and Water Commissioner Samuel S. Baxter demonstrate by their deeds how the nation today is developing . . .

Dynamic Municipal Leaders

The nation's sanitary engineers meeting in Philadelphia this month to attend the annual conference of the Water Pollution Control Federation have a dramatic example of the benefits that sewerage skills can bring, when backed by a dynamic municipal administration.

Philadelphia's Fairmount Park, back in the 1820's, was the site of one of the nation's first important water purification plants. This plant not only reflected great engineering skill; it was architecturally beautiful. It stands today, housing the city's aquarium (see front cover).

Incidentally, the plant's first chief engineer and superintendent, Frederick Graff, Sr., is honored by a stone bust mounted in a nearby kiosk. Apparently, he is the only sanitary engineer in the nation to be honored in this way.

However, after Chief Engineer Graff, Fairmount Park gradually fell into evil ways. Sewers emptied into the Schuylkill at this point, making it into a civic eyesore and producing a sickening stench. It achieved the dubious honor of being denounced openly by a president of the United States.

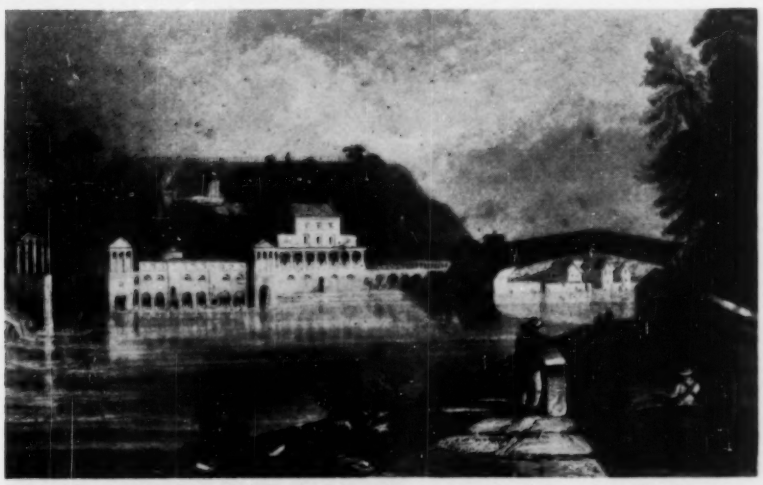
Today, the same area is a charming park. The river bank is lined with boat clubs and the river itself is dotted with racing sculls.

This transformation is one of the many benefits that Philadelphia has gained through the stimulating action of its reform government and the vigorous leaders it has produced. Mayor Richardson Dilworth was one of those who became restive when he heard his city being labeled as "corrupt and complacent," and "the worst governed city in the country." He lost his first bid for the mayor's office in 1947, but won the post of district attorney in 1951, became mayor in 1955 and was reelected in 1959.

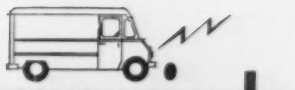
During these years, Philadelphia experienced one of its most dramatic and stimulating periods of resurgence. The most spectacular result has been the rebuilding of the city's downtown and the reclaiming of various slum areas.

Mayor Dilworth has been a lead-

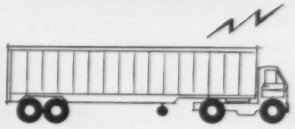
(Continued on page 174)



This lithograph shows Philadelphia's historic water works erected 140 years ago. It still stands today, housing the city's aquarium. The river may be even more beautiful today than it was then through the skill of the city's sanitary engineers who removed sewage and other pollution from the Schuylkill, and the alertness and dedication of its municipal administration, who made it possible for them to do so.



communicate at lowest cost...



with municipal vehicles

$189.50 each, list.

VOCALINE
4 CHANNEL COMMAIRE
ED-27M CITIZENS BAND RADIO

How often have you wanted a practical, low-cost communications system to save man-hours, direct operations from the field, maintain contact between supervisors and men? Now with Vocaline's famous Commaire ED-27M Citizens Band Radio, two-way radio communication is no longer expensive to install and operate. This low-cost system requires no special maintenance, and can be quickly installed by any local radio technician. Commaire operates effectively over an average of over a 15-mile radius in normal terrain, and permits flexible use through four different channels. For distance, clarity, reliability and flexibility, the ED-27M is unequalled by any other in its class! No tests are required for FCC license. Transistorized power supply. 5 watts input — 3 watts output. Available for both 6 and 12 VDC — 115 VAC. Only 5¼ x 9¼ x 8¼. For complete details, mail coupon today!

V-34

VOCALINE
COMPANY OF AMERICA
131 Coulter Street Old Saybrook, Conn.

Send complete literature to:

Name_____

Address_____

City_____ Zone___ State____

ALL YOU NEED IS A WRENCH

AND A MAN TO USE IT!

Dresser® Couplings and fittings are the quickest, simplest, easiest and most economical way to make strong, permanent pipe connections. They are designed for long life under adverse conditions. They are designed to "live" in the ground...on the ground...above the ground—resisting corrosion and providing joints that best take earth shifts or the

vibrations of heavy machinery. New installations as well as repairs to existing lines are performed quickly, simply and inexpensively. The only tool required is a wrench, and any workman can install Dresser Couplings and Fittings with a minimum of instruction and supervision. Your nearby Dresser Distributor has everything you need. Call him today or send for Dresser's illustrated Complete Line Catalog. You can always specify Dresser—with confidence.

dmd

DRESSER

MANUFACTURING DIVISION
BRADFORD, PENNSYLVANIA

DRESSER INDUSTRIES, INC.

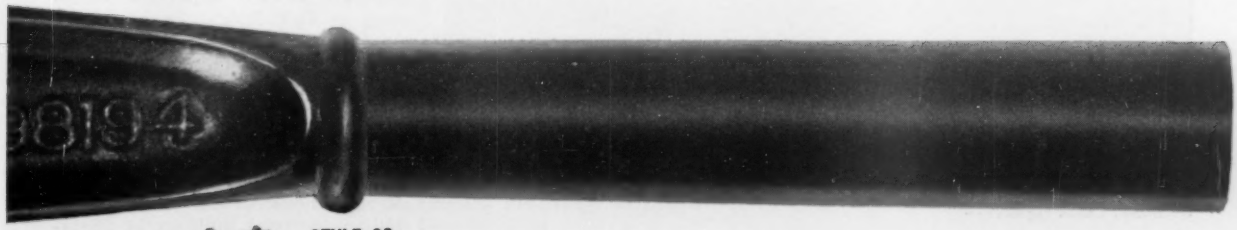
OIL • GAS
CHEMICAL
ELECTRONIC
INDUSTRIAL

STYLE 38 COUPLING
For joining and repairing plain end steel or cast iron pipe. Sizes 3/8" through 72" and larger.

STYLE 60
BELL-JOINT CLAMP
To repair leaks in cast iron bell-and-spigot joints. Also available in Style 60-S for leaks through CIP stab-joints. Sizes 3" through 60".

"360"® REPAIR CLAMP
Repairs holes and breaks in asbestos-cement, cast iron pipe with "all-around" pack. Sizes 2" through 14" in various lengths to 30".

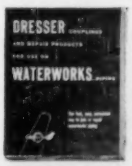
STYLE 65, 90 AND
88 COMPRESSION FITTINGS
To join small diameter pipe and copper tubing, protect valuable machinery and equipment from vibration damage. Sizes 3/8" through 2".



STYLE 63
EXPANSION JOINTS
Absorb concentrated expansion and contraction of exposed pipelines. Built to order. All sizes.

STYLE 118 "HANDIBAND"®
REPAIR CLAMP
Repairs holes in steel pipes quickly. Resists corrosion and right for most line contents including oils. Sizes 1/2" through 8"; and 3", 6", 9", 12" lengths.

STYLE 98 "KUPL+LOK"T.M.
Fittings and couplings for grooved end pipe. Combines pipe joining dependability with positive lock. For working pressures 500 psi and 1,000 psi. Sizes 2" through 8".



NEW!
WATER WORKS CATALOG
Describes and illustrates complete lines of couplings, repair clamps and sleeves. Available from your Water Works Distributor.

Full visibility from A-W Model 60 lets operator see what he's sweeping . . . where he's going.

Belmont, Calif. reports—

A-W sweeps 6 years—no repairs!

"Six years of repair-free service from a 2-yd. Austin-Western sweeper made the larger A-W Model 60 a logical choice when we needed a machine with greater capacity. We're well pleased with our choice!" states George Spanne, Supt. of Streets, Belmont, Calif.

Low maintenance requirements

Simplified design and quality of construction of Austin-Western sweepers result in long years of dependable, trouble-free sweeping service.

Austin-Western's rear broom and automotive-type steering provide maximum safety, maneuverability and sweeping efficiency. The operator sits up front where he has an unrestricted view of the street ahead of the gutter broom. A-W's maneuver closer to curbs and corners, around parked cars and other obstacles for a 100% clean sweep—sweeping efficiency is increased.

Two A-W sweepers are available—Model 60, 4-plus yd.; Model 40, 2 yd. Both feature rear dumping action, automatic flushing system, single or dual gutter brooms, and a sectional spray bar to put water where it's needed.

Economical, efficient

Learn how rear-broom A-W sweepers with full visibility can perform an economical and efficient sweeping job for your community. Write us today or see your Austin-Western distributor.

Austin-Western

CONSTRUCTION EQUIPMENT DIVISION, AURORA, ILL.

BALDWIN · LIMA · HAMILTON

Power graders • Motor sweepers • Road rollers • Hydraulic cranes

(Continued from page 171)

ing spokesman for urban affairs. He has led battles for issues such as improved commuter transportation, urban renewal, air-pollution abatement, public housing and slum removal, water conservation and public health. He is president of the U. S. Conference of Mayors, and is on the American Municipal Association executive committee.

Backstopping Mayor Dilworth's administration has been one of the nation's most able engineers. Samuel S. Baxter, holding the position of Commissioner of Water, has put three new sewage purification works into operation, greatly expanded its sewer network, opened two new semi-automatic water purification plants with a third under way, built a telemeter and microwave load control system to make the distribution of water virtually automatic. Today the nation has practically forgotten that the taste of Philadelphia's water at one time was the stock-in-trade of every third-rate gag-writer.

During the war, Major Baxter had charge of the design and construction of the super-hush-hush town of Oak Ridge, Tenn., where the infant science of nuclear fission grew to stagger mankind's imagination. When he put aside his uniform and returned to Philadelphia, he built the Walnut Lane Bridge, the first prestressed concrete bridge in the United States. He also supervised construction of a new $8 million terminal building at Philadelphia's International Airport.

He is presently a national director of the American Society of Civil Engineers, a national director of American Water Works Association, vice-president of the Engineers Club of Philadelphia, chairman of the Research Foundation of the American Public Works Association and a former president of the Association. He is a Diplomate in the American Academy of Sanitary Engineers.

Back in 1899 James Bryce wrote of Philadelphia in his "American Commonwealth," "The local control and management of the party fell into the hands of obscure citizens, men who had their own ends to serve, their own fortunes to make, but who were valuable to the party. . . . They sometimes placed men of good social standing in the higher posts, but filled the inferior ones, which were very numerous, with their own creatures."

About modern Philadelphia, and other cities across the nation, no one can write like that today. ◄◄

a name to remember...

HALLIBURTON

FOR WATER WELL SERVICE REQUIREMENTS!

Whatever the service requirements of your water well, you can depend on Halliburton for the services and tools that are engineered to increase the life and yield of your reservoir. Halliburton, world leader in well techniques and equipment, offers the following services:

CEMENTING . . . For maximum protection of natural permeability and porosity of the producing formation and casing; minimized migration of fluid.

FRACTURING AND ACIDIZING . . . Effective application of propping agents and chemicals for the stimulation of increased yield, by enlargement of flow channels or removal of restrictions.

HYDRO-SONIC REDEVELOPMENT . . . A proven technique that provides fast, efficient and economical treatment of water supply wells by means of controlled sonic shock waves and high frequency bubble agitation.

FORMATION TESTING . . . Tools and techniques specifically designed for more accurate reservoir evaluation . . . for evaluating potential.

SALES PRODUCTS AND MATERIALS . . . Halliburton offers a wide variety of field-tested, well-proven tools and materials developed to help make your water well a profitable producer.

Whatever the type of your water well . . . potable, irrigation or industrial supply . . . whatever the nature of your well's service requirements, you can rely on Halliburton for outstanding service. There are 275 Service Camps ready to serve you.

For the Service Camp address nearest you, write or call . . .

HALLIBURTON COMPANY

DUNCAN, OKLAHOMA

THIS NATIONAL CLASS "41" is used for tax receipting.

NATIONAL ACCOUNTING MACHINES are fast, flexible, accurate, and efficient.

VERNON W. KAYS, COUNTY CLERK, County of McHenry, Woodstock, Ill.

IN JUST EIGHT MONTHS, this National System paid for itself!

"Our *National* Accounting System saves us $44,952 a year... repays its cost every 8 months!"

—County of McHenry
Woodstock, Ill.

"Our National System saves us a lot of money each year. But that's not all. It's more flexible, more accurate, and faster than our previous method.

"We use our National Accounting System in many different applications—including tax billing, tax receipting, classifying, and distributing. This wide range of uses shows the extreme flexibility of our National System.

"Nationals also help us through their accuracy. Formerly, our hand-written method produced many errors in addition which took hours to correct during audits. However, our National System electrically computes all totals—even verifies them! On top of this, we benefit from the speed of our National System. It eliminates the need to hire extra bookkeeping personnel despite increased accounting demands . . . allows us to keep our records up-to-date all the time.

"Finally, our National Accounting System paid for itself in eight months. This amounts to a saving of nearly $45,000 a year, which is excellent proof that Nationals are mighty profitable investments."

Vernon W. Kays

County Clerk of the County of McHenry, Woodstock, Ill.

Your municipality, too, can benefit from the many time- and money-saving features of a National System. Nationals pay for themselves quickly through savings, then continue to return a regular yearly profit. National's world-wide service organization will protect this profit. Ask us about the National Maintenance Plan. (See the yellow pages in your phone book.)

THE NATIONAL CASH REGISTER COMPANY, Dayton 9, Ohio

1039 OFFICES IN 121 COUNTRIES • 76 YEARS OF HELPING BUSINESS SAVE MONEY

*TRADE MARK REG. U. S. PAT. OFF.

National*

ACCOUNTING MACHINES
ADDING MACHINES • CASH REGISTERS
ELECTRONIC DATA PROCESSING
NCR PAPER (NO CARBON REQUIRED)

Fulton Mall is broken into a series of related spaces and plazas by the low structures in the mall.

Fresno Paints a New Central Picture

By R. N. KLEIN
Chief Administrative Officer
Fresno, Calif.

The pressure brought upon the cities in the last half century by the new mode of transportation and by the increased standard of living have only resulted in emergency measures of relief without far-sighted investigation.

All portions of the cities have been affected but nowhere more than in the central areas—the downtowns—where there is the highest concentration of investment in land, buildings, roads, and utilities.

Like many other cities in America, the historical and commercial dominance of the center of the City of Fresno, Calif., is threatened by overdevelopment of suburban facilities, deterioration of areas adjacent to downtown, and inadequate traffic and parking facilities. But Fresno is young with its greatest growth ahead and is located far enough from other large cities to avoid being absorbed into a metropolitan conglomeration. The number of empty buildings downtown is evidence that the time for action is now. The City of Fresno, the Redevelopment Agency and the Downtown Association (Fresno Hundred Percenters) retained Victor Gruen Associates in the fall of 1958 under three separate contracts covering general planning for the entire central area, detailed planning study of the commercial core, and final plans for the downtown urban renewal project lying within the commercial core.

One of the principal elements of the plan developed is a freeway loop around the central area. The plan utilized pairs of one-way streets wherever possible, thus increasing traffic capacity and facilitating turning movements. Within the main loop a series of smaller loops are defined with a series of alternate through-traffic routes to facilitate interior maneuvering movements and short-distance cross-town traffic.

Within the loop are areas suitable for new residential development. Such development should take advantage of the possibilities of closing streets, should make use of rehabilitated older houses where feasible. The plan proposed that the civic center be expanded, new buildings be grouped around landscaped plazas and malls, and this will be closely connected to a proposed new convention hall. Between the south end of the core super-block and the new convention hall an area will be created for offices and hotels. The core super-block will be the most active, the most productive in terms of business volumes, and visually the most dramatically transformed of any portion of the central area. Included are 16 blocks or 65 acres.

Extending its entire length will be a system of pedestrian malls and plazas from which all vehicles except small, slow-moving, "pedestrains" (similar to those at Disneyland or in World Fairs) will be excluded. Fire, police, or ambulance equipment will enter over continuous paved lanes connecting all elements of the system.

A total of 36.5 acres within the

(Continued on page 178)

for durability

economy . . .

. . . flexibility

use GUNITE!

- DAMS
- RESERVOIRS
- TUNNELS
- GRAIN ELEVATORS
- BREAKWATERS
- CONCRETE TANKS
- FILTER PLANTS
- STADIUMS
- SEA WALLS
- PIPE LINES
- SEWERS
- STACKS
- BRIDGES

estimates, specifications and surveys made free of cost to you. write, wire or call MElrose 4-8120

INDIANA GUNITE & CONSTRUCTION CO., INC.

ENGINEERING—CONSTRUCTION

223 N. Alabama St. • Indianapolis, Ind.

Indiana Gunite & Construction Co., Inc.
223 N. Alabama St. • Indianapolis, Ind.

Gentlemen: Please have a representative contact me. I am interested in:

Description: .....

.....

.....

NAME .....

STREET .....

CITY ..... STATE .....

(Continued from page 177)

super-block is included in the redevelopment project, "Central Business District Project One." The final project report for this project has been completed and been transmitted to the regional office of the Housing and Home Finance Agency.

All those portions of the final plan dealing with actual planning problems (excluding such items as appraisals, re-use analyses, economic feasibility analyses, etc.) were prepared by Victor Gruen Associates and these plans are completely integrated with the plans for the central area and the core super-block.

The purpose of the Federal Urban Renewal Program is to provide federal aid to cities for rebuilding blighted areas which could not be renewed without such assistance. One of the major justifications for the program is the greatly increased tax return to the city after renewal.

Public Transportation

It is important to the health of the central area and to the workability of the central area plan and the core area plan that public transportation be improved and that the proportion of persons thus entering the central area be increased. Public transportation in Fresno is provided by the Fresno City Lines, a private company having 51 GM diesel buses. There are no express lines nor loop lines. Basic revisions will obviously have to be made in order to relate the bus system to the core super-block in particular. To allow buses to continue to travel along the malls would destroy the entire intent of the plan.

Revisions to the bus system in the Fresno central area should meet certain criteria:

All bus lines should continue to contact one central point at which it is possible to transfer to any other bus.

The central terminal point should be as close to all commercial facilities and as close to the center of the core super-block as possible.

The central terminal point should also provide good service to the civic center area.

There should be special parking lanes and circulation lanes for buses at the central terminal.

Where possible the buses should travel on the one-way arteries in order to increase speed and efficiency.

The key to this plan is the provision of a desirable central terminal with a pleasant and handsome waiting and transfer area.

How much will all this cost?

First, it will cost less than not to implement the plans. To fail to bring about central-area revitalization will mean steadily increasing expenditures by the city and by private enterprise for relocation and redevelopment of spreading blighted areas. Worse still, these upward spiraling costs will have to be met within the framework of decreasing total business volumes and city property and sales tax returns.

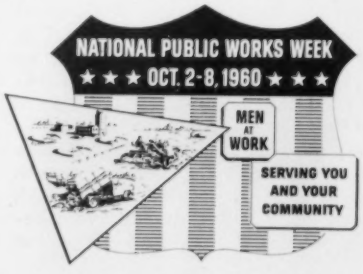
Second, many of the costs involved in doing the work are expenditures which will have to be made in any case. There will have to be street improvements, new parking facilities, and new public and private buildings.

Third, much of the work will be the responsibility of private enterprise. Fourth, there are the many methods by which expenditures can be distributed between federal government, state government, city government, and private enterprise.

The city council has approved this plan in concept and the council and the Downtown Association have jointly retained Mr. Gruen to prepare preliminary detailed plans on the central mall. The plans will set forth the details and cost estimates on construction of the mall areas.

It is possible that construction of the mall will be decided on this summer and will be financed independently of federal funds. Construction of a three-level, 1,200-car underground garage under two blocks of Van Ness Avenue, one block from the heart of the mall area, is contingent upon our proceeding with the mall at an early date.

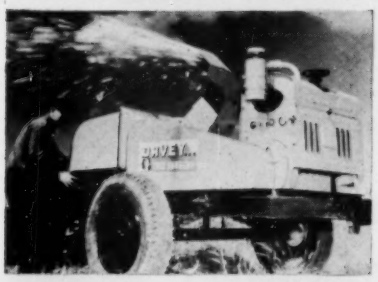
It is the general opinion of downtown leaders that "half-way" measures will not save downtown—only immediate recognition of the problem and action on the completed plan will guarantee the future of the central core area. ◄◄



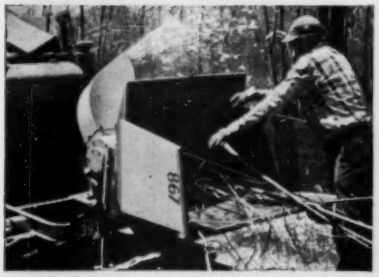
BRUSH DISPOSAL CREWS OPERATE FULL TIME WITH THE TROUBLE-FREE FITCHBURG CHIPPER

CITY
This low-maintenance Fitchburg Chipper is disposing of brush in the City of Holland, Michigan.

UTILITY
"Our men have been particularly pleased with their Fitchburg Chippers . . . they are rugged and reliable."
Rockland Light & Power Company
Nyack, New York



TREE COMPANY
"We have never had one (Fitchburg Chipper) wear out or give excessive trouble." Chipper still operating after 9 years.
Davey Tree Surgery Co. Ltd.
San Francisco, Calif.



PUBLIC WORKS DEPT.
"Our Fitchburg Chipper consolidates the bulk, thereby lessening dumping operations. It requires minimum maintenance and manpower."
Dept. of Public Works
State of Rhode Island

When crews go out to trim trees, it's costly to have machine breakdown. That's why foresters, park superintendents, line clearing supervisors, and tree companies prefer the Fitchburg Chipper. This well-engineered brush chipper is designed for busy, trouble-free service, no down-time.

The rugged Fitchburg Chipper requires little upkeep, and has low maintenance cost. It's economical to operate. And crews like the exclusive spring-activated feed plate which adjusts itself automatically to any size brush up to its rated capacity. This patented feed-plate provides protection from damage from foreign materials, makes for greater crew safety.

The Fitchburg Chipper is engineered to work fast, safely, and to be always "ready to go." It's the chipper which won't slow down your crews, lets you plan their work intelligently–saves you time and money.

Please send in the coupon for more information, and for copies of articles on chipping which appeared recently in leading publications. These feature articles describe five methods of brush disposal and ten new ways to utilize "by-product" chips. Send for your copies, they are well worthwhile.

FITCHBURG ENGINEERING CORPORATION FITCHBURG, MASS.

FITCHBURG ENGINEERING CORPORATION
Dept. AC-610, Fitchburg, Massachusetts

☐ Please send me important articles which describe 5 methods of brush disposal, and 10 new ways to utilize brush chips.

☐ Please send more information on Fitchburg Chippers.

Name_____

Address_____

City_____ Zone____ State_____

500 TONS OF CASTINGS DAILY!

With the recent opening of plant #2, shown above, our production potential of Gray and Ductile Iron Construction and Industrial Castings has now reached a maximum of 500 tons daily. This capacity, plus 15,000 patterns, plus a good on-hand supply of standard castings, plus 90 years experience in the business, is your assurance of prompt delivery, superior quality, complete uniformity and practical economy.

* * *

New and fully illustrated 168-page catalog of construction castings will be sent promptly upon request.

NEENAH FOUNDRY COMPANY

NEENAH • WISCONSIN

Chicago Office: 5445 North Neva Avenue, Chicago 31, Illinois

BUILDING LETTERS

HISTORICAL MARKERS

MUNICIPAL MARKERS

GOLF COURSE PLAYGROUND MARKERS

CEMETERY MARKERS

Municipal

STREET SIGNS

Signs are complete . . . . no fittings to buy

24 hour visibility

Four way—2 double face—with pipe cap. New scientific coatings make them permanently attractive, and withstand weather, airborne acids, alkalies, and other contaminating materials. Choice of satin or Prismo reflectorized letters against colored background. Easy to read both day and night. Write for brouchure "AC".

LAKE SHORE MARKERS INC.

CAST *Lifetime* ALUMINUM

654 W. 19th St. • Box 59 • Erie, Pa.

PERFORMS WITH EASE!

MONARCH power hydraulic controls lift and lower snow plows automatically!

Be sure your equipment is equipped with Monarch units — makes snow removal jobs faster, easier, more economical. One man controls the plow right from the cab . . . instant up-and-down action with the flick of a wrist. A Monarch control can be quickly installed. See your dealer. *Send for free folder today.*

MONARCH ROAD MACHINERY COMPANY

1331 Michigan St., N.E. Grand Rapids 3, Michigan, U.S.A.

1959 Purchasing Sum-Up In Atlanta

By ERNEST J. BREWER*
Purchasing Agent
Atlanta, Ga.

It seems hardly possible that, only a few months ago in THE AMERICAN CITY for October 1959, we were discussing our 1958 annual report. Here I have in my hand our 1959 report. In it are not a lot of figures and graphs that will not be read (though you might get around to reading it by 1975) but instead some of our savings, improvements in methods of procurement, evidences of departmental cooperation, and comments on our public relations efforts.

Only a cooperative effort has enabled our department to gain national recognition. First, Atlanta is a well governed city; invoices are paid promptly, and not since 1937 has the city borrowed one dime for operating expenses. Last year we saved over $37,000 in cash discounts. Second, the Purchasing Committee, of which Alderman L. O. Moseley is Chairman (since 1941), supervises the work of the department but does not interfere in the award of contracts or purchases. The department is free to function in accordance with laws and ordinances governing its operation.

No successful or even diligent city purchasing agent isolates himself. Two of the departments with whom we are most closely associated from day to day are the law department and the city comptroller. We are also indebted to the public library for help in reproducing our specifications. We are most appreciative of the friendly spirit that exists between us and the hundreds of manufacturers, suppliers and contractors, who sell and serve the City of Atlanta. We thank the City Hall reporters for their interest and fairness.

Purchase orders written decreased by 543 whereas the dollar volume increased by approximately $100,000. Where the volume justifies, we are taking sealed bids to cover a year's requirements. Volume buying saves money, time and paper work, for the using departments as well as the purchasing department.

In 1952, when the dollar volume on purchase orders was $4,289,795 we wrote 21,545 purchase orders (the largest number in our history), whereas during 1959 we wrote only 20,220 or 1,325 fewer; yet the 1959 dollar volume was $5,642,834 or 31% more. We daily process an average of 57 purchase requests from the various departments. From these we write approximately 78 purchase orders, representing an average daily expenditure of $17,100.88.

During 1959 we purchased one ambulance for $6,648, sixty lawn mowers, three motor scooters, 70 automobiles, 91 trucks (all types), one bookmobile, 591 pairs of hip and knee boots; two plywood life boats.

Some Savings

For the first time, we took bids on recapping of tires, and expect a saving of between five and seven thousand dollars for 1960. Before we definitely decided to take bids on recapping, an extensive survey was made of other cities' experience for a period of two or three years. We received valuable assistance from other cities and this has helped us in writing our specifications.

We were paying $23 each for a certain tube for traffic control. We checked for another source of supply and decided to purchase four of these at $6.50 each on a trial basis. They proved just as good as the tube for which we were paying $23. We buy about 100 per year. At a difference of $16.50 per tube, the city will save approximately $1,650 per year on this one item.

We had been purchasing over the years a certain type of underground cable for the Atlanta Airport. In July, when we took bids on this item, we requested airport authorities to take a second look at a competitive cable. They did and found that it met their specifications. This resulted in a saving of $207.

In August we took bids on a contract for sewage treatment plant improvements. After the bids with specifications attached had been sent to the bidders, it was discovered that the engineers had included a large quantity of office furniture and fixtures. This was called to the attention of the using department and with their approval, we

(Continued on page 182)

* Mr. Brewer is also president of the National Institute of Governmental Purchasing.

BLACKBURN-SMITH
PNEUMATIC
SEWAGE EJECTORS
Preferred by Engineers

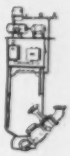
More sanitary, cleaner, less messy.
No complicated piping.
No place for collection of solids in pots. Minimum maintenance.
Dependability.

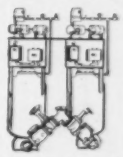
•

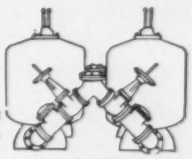
Installed in New York City Subways System.

•

20 to 1,000 gpm single and twin units. Discharge heads to 150 ft. or more.


Single Packaged Unit


Duplex Packaged Unit


Duplex Ejector

The Blackburn-Smith Pneumatic Ejector System, with or without air receivers, offers the following controls:

ECT—Electrode Control Type
EXT—Electrode Control with inlet-outlet connection at top.
FST—Float Switch Type
SFT—Side Float Type
RFT—Rising Float Type
BFT—Bell Float Type

Used in hundreds of sewage booster stations. For over 60 years, Blackburn-Smith Ejectors have proved their economy, efficiency, and reliability.

SEND FOR BOOKLET—S-55

Blackburn-Smith Mfg. Co.

65 Garden Street, Hoboken, N. J.
Telephone: OLdfield 9-4425
N. Y. Telephone: BArclay 7-0600

Blackburn-Smith Can Also Supply:

FEEDWATER FILTER, GREASE EXTRACTOR
Eliminates oil, grease, dirt, fine matter from feed water. Used by world's largest Industrials; U. S. Government; Municipalities; Marine field. Single & Twin type.

OIL REFINER
Outstanding achievement in pressure leaf filters. Extremely fine filtration. Removes emulsified and free oil from condensate down to .01 parts per million.

AUTOMATIC STRAINER
Gives continuous self-cleaning service on water lines, or lines carrying processing liquids, oils, etc. Rugged. Dependable. Economical.

PLUG TYPE DUPLEX STRAINER
Serves both as a Strainer and a filter for liquids or gas. Strainer and Filter elements interchangeable. Special designs available.

ROTARY STRAINER
Strains solids from water, oil, other liquids. Easy and infrequent cleaning, without flow interruption. Simple; compact; strong; trouble-free; durable.

SEND FOR LATEST BULLETINS

A PLECTRON

PATROL
High Frequency F. M. Radio Receiver
will
KEEP YOU IN TOUCH WITH YOUR RADIO EQUIPPED VEHICLES
AND
INCREASE THE EFFICIENCY OF YOUR DEPARTMENT

Receivers are available on a single, fixed frequency in the 25-54 or 152-174 mc range.

CRYSTAL CONTROLLED—NOT TUNABLE
NO INSTALLATION REQUIRED
LONG RANGE RECEPTION
ATTRACTIVE METAL CASE
LOW COST

For complete information please write Dept. ACM-5

PLECTRON CORP.
Overton, Nebraska

(Continued from page 181)

mailed an addendum removing this furniture from the bid. We then took separate bids on the furniture, at a considerable saving. Since that time an ordinance has been passed by the Aldermanic Board to prevent a recurrence of this in future contract bidding.

We were paying $1.20 per foot for guard rail with only one bidder. We secured additional bidders and today pay 92 cents a foot.

In an effort to bring about a better understanding with some of our bidders regarding specifications, we have had meetings with representatives of firms dealing in the following items: traffic signal equipment, street name signs, two-way radio equipment and building materials.

One of the most profitable things we did was to cooperate with the lumber dealers here in Atlanta in working up a meeting to which we invited representatives from all city departments to meet with lumber grading specialists. There, on the ground, we learned something of the art of specifying the proper grade of lumber and being able to identify the grades, so that those concerned can intelligently pass on the lumber when it is delivered. As a result of this effort, we have had only minor trouble from this source, whereas until that time, it was becoming something of a headache to us.

The lumber dealers were complaining that specifications were not being met by low bidders. The interested departments were reporting to us that the lumber specified was not being delivered. It was high time we took some corrective measures, and this we did. ◄◄

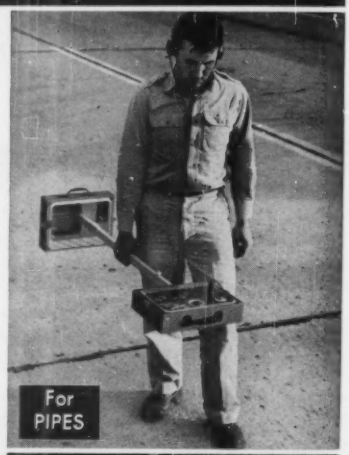
You Can't Ignore Mobile Homes

Mobile homes have reached such large proportions that cities must include them in planning. This was the consensus in a panel discussion of the American Society of Planning Officials held recently in Miami, Fla. The panel composed of Ben Shein, Chairman, City Planning and Zoning, Tucson, Ariz.; Ernest R. Bartley, Professor of Political Science, University of Florida, and Marshall K. Powers, Research &

GOLDAK TRANSISTORIZED LOCATORS

Pipe Locator-Leak Detector
"Dualtronic"
Model LC-5T

The new "Dualtronic" combines the finest transistorized Pipe Locator ever developed with a high-gain Leak Detector to produce an effective and useful multi-purpose instrument. Designed specifically for Municipalities and Water Companies, the LC-5T assures pin-point detection of pipes, cables, mains and laterals and becomes a sensitive detector for water leaks simply by plugging in a crystal, rubber-encased microphone. Additionally, by a simple manipulation the new "Dualtronic" will pin-point valves, risers, boxes, and manhole covers. Now with transistors the versatile LC-5T is lighter, more sensitive, easier to operate, and it requires only flashlight batteries . . . Write today for further details on the "Dualtronic" and other Utility detection instruments.



The GOLDAK Company, Inc.
Leading Electronic Manufacturers
1933
1544 W. Glenoaks Blvd.
Glendale 1, Calif.

WORLD'S FINEST DETECTION EQUIPMENT MANUFACTURERS SINCE 1933

A DEPENDABLE BUYING SOURCE

power sweeper refill fibres

Wide variety of domestic and imported fibres. Large or small filled immediately from huge warehouse stock.

gutter wire

Tough and durable. In guages and lengths to suit your needs. Write or call VAndyke 2-0867 for prompt Steiert service.

A. STEIERT & Son, Inc.
Hatfield, Penna.

Planning Consultant, Mobile Home Research Foundation, brought out the following facts:

With mobile homes accounting for one and a quarter million homes today, and one out of ten home starts, and with no provision made for adequately locating 60% of the output of mobile homes, it is easy to see that cities are going to have to face the problem seriously and provide an adequate solution.

The violent opposition to mobile homes has been brought about by the lack of adequate planning but today with the refinements that have been initiated since the second world war, many homes properly located are luxury housing. With the addition of luxury features has come an increase in size. A new two-part unit will form a home 20 feet by up to 60 feet. With these trends the industry is shifting from mobility to permanency.

The feeling of opposition has emanated from three causes:

1) prevalence of sub-grade parks
2) the prevalence of a single mobile home on a single lot in a residential area
3) inadequate tax laws which do not provide that such areas pay an equitable share of the taxload.

Special zoning for mobile homes was not recommended but the zoning ordinance, building code, health code should deal with mobile homes just as they do other housing.

The location in general should be provided for in high density, multiple residential zones and should be subject to roughly the following conditions:

1) Minimum parcel area should be about 10 acres
2) Maximum density eight to ten per acre
3) A minimum of 50 spaces should be ready for occupancy before the park is opened.

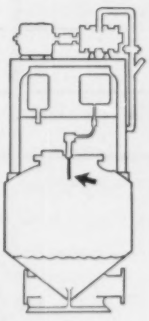
These homes should not be confined to commercial zones any more than apartment houses. If proper provision is made for them in city codes and tax laws they can be an asset to a community.

For anyone interested in a more detailed discussion of this subject, "Mobile Home Parks and Comprehensive Community Planning" by Ernest R. Bartley and Fred H. Bair, Jr., was recommended. This book may be obtained from the Public Administration Clearing Service, University of Florida, Gainesville, Fla. ◄◄

NOW...No more Electrode Cleaning!

New ***YEOTRONIC***® Control ... an exclusive feature of Yeomans Pneumatic Ejectors

YEOTRONIC® brings miracle of electronic control to Yeomans Pneumatic Ejectors



Only ONE Short Sensor NO Electrode Cleaning!

YEOTRONIC control replaces the dual-electrode system and its long, troublesome electrode with a single short sensor that requires no attention.

YEOTRONIC is a major breakthrough in the electrical control of pneumatic ejectors. It is not a time-delay relay device...not a time-clock mechanism . . . but a modern transistor-operated unit designed to handle today's wastes without fouling.

YEOTRONIC is available at no extra charge on Shone®, Expelsor®, and Packex® electrically controlled pneumatic ejectors. For complete details, call your Yeomans representative or write for information.

E-6033

Another Step Forward

YEOMANS

2000-3 N. Ruby St., Melrose Park, Illinois

no place for SUBSTITUTES in pipe selection

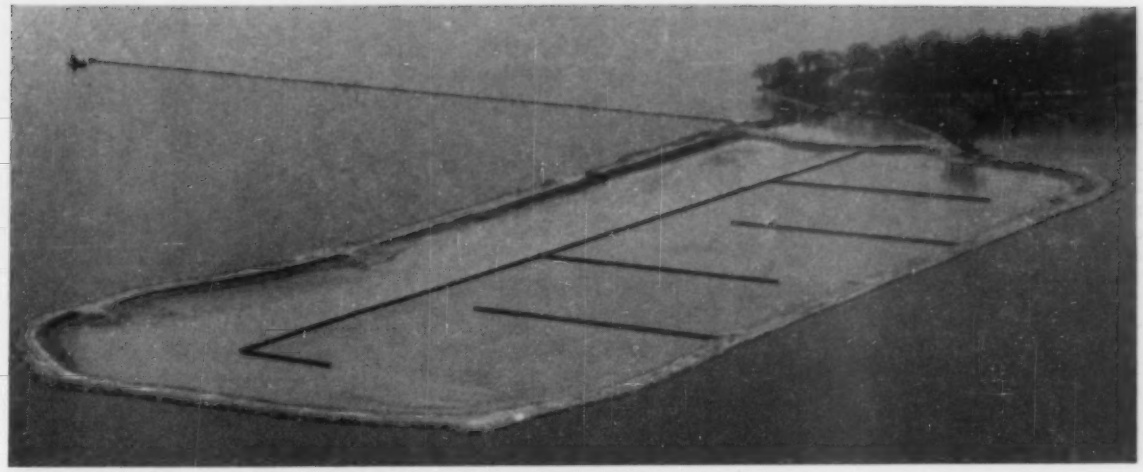
Check the score before experimenting with substitutes for cast iron pipe!

POINTS TO COMPARE	CAST IRON PIPE	SUBSTITUTE PIPE
Long Life	100 Years or more	?
Bursting Pressure	2,988 psi	746 psi
Bursting Tensile	25,880 psi	3,430 psi
Impact Resistance	234 ft. lbs.	60 ft. lbs.
Beam Loads (12-foot span)	20,790 pounds	3,060 pounds
Crushing Loads	17,900 lbs. per ft.	6,480 lbs. per ft.
Water Absorption	None	9.8% of weight after 24-hour submersion
Tight Joints	Wide selection for liquid or gas service	Limited selection for water service
Inside Diameter	6.14″	5.85″

Pipe tested were 6″ Class 150.

AMERICAN CAST IRON PIPE CO.
BIRMINGHAM ALABAMA

SALES OFFICES: Chicago
New York City — Kansas City
Dallas — Minneapolis — Denver
Pittsburgh - Orlando - Cleveland
Birmingham



This 27-acre pre-treatment basin frees Oshkosh, Wis., of a long-time algae problem. Size of basin can be approximated by comparison with 1,950-foot-long intake line extending from basin in the background.

No More Algae Problems

Oshkosh, Wis., constructs a large basin to clear the water of algae before it reaches the treatment plant

By **H. S. THORGRIMSEN**
Former City Manager

For a city located in the heart of this country's water land to be in trouble because of a water shortage is difficult to imagine. Yet for years Oshkosh faced this very problem during the summer months —not because of increased demand, but because of algae. During the critical months this plant life reduced filter runs to 90 minutes, and at times to as little as one hour. The result was a plant output of only 50% of normal capacity at a time when the need was greatest.

Our source of supply, Lake Winnebago, has all the characteristics of a good algae-breeding ground. It is 35 miles long and ten miles wide on the average; it is the third largest lake in the nation lying entirely within the boundaries of one state. It is also very shallow, averaging some 12 to 14 feet deep. Because of this shallowness, the lake is extremely susceptible to wind action resulting in violent wave action in summer and ice action during the winter freeze.

Since the lake is shallow and completely exposed to sunlight, plant life is abundant. The diatoms appear early in spring but are easily destroyed by natural action. Green algae appear after the diatoms but are not too numerous. Then come the blue-green algae and the trouble begins.

Though easy to destroy, blue-green algae caused much of the Oshkosh water production-purification problem in the past. Without treatment other than the application of huge quantities of activated carbon to control taste and odor, the algae clogged the filter beds, resulting in reduced production and the loss of large quantities of treated water for filter back-washing.

To make matters worse, the used carbon was wasted to the lake, producing vast accumulations of what appeared to be heavy black emulsions in the vicinity of the city.

Getting rid of the algae before it reached the plant seemed to be our only answer and this we have accomplished through the construction of a large pre-treatment basin in the lake itself. This huge basin covers a 27-acre area in Miller's Bay and contains some 62 million gallons of water at all times. It is capable of delivering more than 8.0 mgd of algae-free water to the purification plant. The average water depth is approximately 7 feet.

We constructed the exterior walls of the basin during the sum-

(Continued on page 186)

Chemical Costs With and Without Pre-Treatment

For One Year Based on 4.0 mgd Rate

Chemical	Without Pre-Treatment (Actual 1955 Costs)	With Pre-Treatment (Estimate)
Activated Carbon	$27,805	$13,600
Alum	12,163	10,925
Chlorine	3,776	3,776
Ammonia	971	None
Copper Sulphate	None	4,860
Totals	$44,715	$33,161

(Continued from page 185)

mer of 1959 using material taken from the many miles of trenching required for water, sanitary sewer and storm sewer lines placed during the year. These trenches all had to be backfilled with select material, releasing the displaced earth for use elsewhere. Rip-rap of dump-laid rock, each unit of which is some four cubic feet in size, protects the exterior surface of the outer walls.

The interior baffle walls are four-inch-thick concrete, formed and poured in place. The sections, held in place between the flanged sides of steel H-beams, vary in length from 16 to 20 feet. The H-beams average 7.3 feet in height and are imbedded in concrete placed in augered holes 16 inches in diameter and five feet deep.

Intake Line

Water enters the basin by gravity through a 1,950-foot-long intake line constructed of 36-inch corrugated, coated, and galvanized steel. The line is completely embedded in the lake bottom from the basin entrance to the lake intake structure.

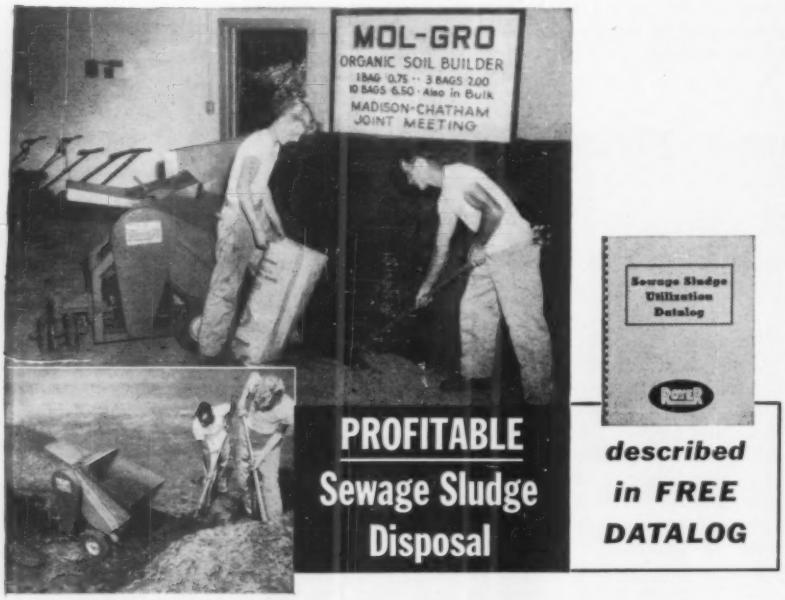
We began using the new basin on June 1 of this year. Copper sulphate at the rate of 2.0 ppm is added to the water as it enters the basin. This rate of feed will be maintained during the entire ice-free season regardless of the type of algae or pumping rate. Given a contact time of 3 to 4 days during warm weather, this dosage is sufficient to reduce algae, as well as the tastes and odors, to virtually zero. Seven days of contact time are required during cool, cloudy weather. Thus the basin was designed and built so that it provides a full seven-day contact period. A 30-inch line transports the water by gravity from the basin to the treatment plant, a distance slightly less than half a mile away.

The destruction of algae appears to take place within a short travel from the point of chemical application. Portions of the algae, bluish white in color, rise to the surface. The intensity of this color gives an indication of the effectiveness of the treatment. At this point the algae odor increases and the appearance of the water is anything but pleasing. However, as the water continues to flow through the basin, the algae begin to disintegrate and disappear, not by settling to the bottom but through actual disintegration. Sunlight and wind apparently aid this action.

By the time the water is halfway through the basin, decomposition is virtually complete and only an oily scum appears on the surface. All scum has disappeared by the time the water reaches the discharge end, and it is now ready to undergo normal purification process. We still find it necessary to use carbon, but in quantities 70% to 80% less than was formerly required.

Cost Data

Although it is still too early to give accurate operating cost figures, certain comparisons and estimates can be made at this point. Taking the year 1955 at random, that year we pumped a total of 1,455,752,000 gallons of water, or about 4.0 mgd. Actual chemical costs for the year were as shown in the table appearing on p. 185. With the use of copper sulphate, chlorine requirements will remain the same but we will not have to use ammonia. Also, the amount of activated carbon and



The Madison-Chatham (N.J.) Joint Meeting bags and sells their *Royerated sewage sludge cake*. While not big business, the operation does represent an additional source of municipal income.

The need for increasing municipal income, keeps growing in importance. The climate of today's economy warns against tax increases. Economies of operation are being searched for.

One of the most obvious economies that any organization can practice is the elimination of waste. Yet many sewage plants continue to dump or burn their sludge cake — throwing away or sending possible income up in smoke.

In April 1957, Royer published a new edition of their "Sewage Sludge Utilization Datalog," pointing the way to turning sewage from an expense into a profit. Since then, we've gone through two printings.

If your community is still destroying this source of revenue, write today—and learn how you, too, may experience *profitable sewage sludge* disposal.

Please send me a copy of your new edition of the information-packed "Sewage Sludge Utilization Datalog."

Name_____ Title_____

Plant_____

City_____ Zone_____ State_____

☐ I am interested in a demonstration of the Royer Shredder at work.

ROYER FOUNDRY & MACHINE CO.

ROYER

166 PRINGLE ST.
KINGSTON, PA.

alum needed will be materially less. Estimates based on our initial experience indicate chemical costs for one year based on a pumpage of 4.0 mgd will be as shown in the table.

Thus, we will save over $11,500 per year in chemical costs alone, or approximately 25%. However, greater benefits include increased production of the existing plant, considerable reduction in filter wash-water requirements, and the elimination of the unsightly black emulsion-like material on the lake caused by the heavy use of activated carbon. Finally, the quality of the water will be greatly increased at a sizeable reduction in our unit cost.

Other Work

Although the new basin is the outstanding feature, it represents only part of a $2-million water-improvement program. The cost of the basin and its immediate appurtenances and features amounted to $493,645. This includes the basin, intake structure and pipe, and electrical installations and pumps, as well as engineering costs.

Other work scheduled for completion in 1960 includes a 16-inch sub-aqueous crossing of the Fox River at a cost of $72,649; a new transmission line to cost about $228,000; a new $79,000 reservoir and pump station, and electrical work and pumping equipment to cost some $30,000.

In addition, the overall program includes a second river crossing, reconstruction of existing filter beds and additional new beds; a new clear well, and more feeder mains.

When completed, this program should provide the citizens of Oshkosh an abundance of good water when and where needed—and a treatment plant free of that long-time problem, algae. ◄◄

Money Problems Worry Mayors

The mayors of the largest cities worry more about money problems than anything else, according to the *Housing Yearbook for* 1960, published by the National Housing Conference.

The 72 mayors and city managers who replied to an opinion questionnaire listed their gravest municipal headaches as: financial, community development, transportation and sociological.

Mayor Ben Hanson of Tacoma, Wash., voiced the universal conclusion that "since the federal government is taking about 80c out of every tax dollar, the cities must and shall continue to appeal to Congress for federal aid in solving our urban renewal, air pollution, stream pollution, highway and airport problems."

Mayor Daley of Chicago saw little hope for building new rapid transit lines "without substantial public assistance from some source." Mayor Dilworth of Philadelphia said: "We have the program, the know-how, and the tools waiting to be developed to cope with all of our problems. The key factor is adequate revenues."

In listing specific problems in the order of their importance to City Hall, the mayors selected

- **limited tax base**
- **elimination of slums and blight**
- **traffic congestion**
- **inadequate mass transit**
- **juvenile delinquency**

as being the most pressing. ◄◄

PALM SPRINGS *chose a* STEEL TANK

. . . the *only* type of water storage tank built to AWWA standards!

Palm Springs, the California desert playground of movie stars and sunworshippers, is a thirsty city. There are more gardens and swimming pools per capita than any other place in the world. Fortunately, the San Jacinto Mountains have an abundance of underground streams. A new 5,000,000 gallon steel reservoir, erected on the side of rugged Mt. San Jancinto provides the necessary storage and pressure for the vital water supply.

STRENGTH
TIGHTNESS
ELASTICITY
ECONOMY
LONG LIFE

. . . these are inherent qualities of welded *steel* construction. Compare *steel* tanks with other types . . . you'll see why "steel tanks store water best." You can always specify *steel* tanks with confidence.

More Than 10 out of 11 Water Storage Tanks Are Constructed of STEEL

STEEL PLATE FABRICATORS ASSOCIATION
105 West Madison Street • Chicago 2, Illinois

STEEL PLATE FABRICATORS ASSOCIATION — FOUNDED 1933

The University of Washington Helps Communities to Help Themselves

By Dr. J. A. WAGNER*
Long Beach State College
Long Beach, Calif.

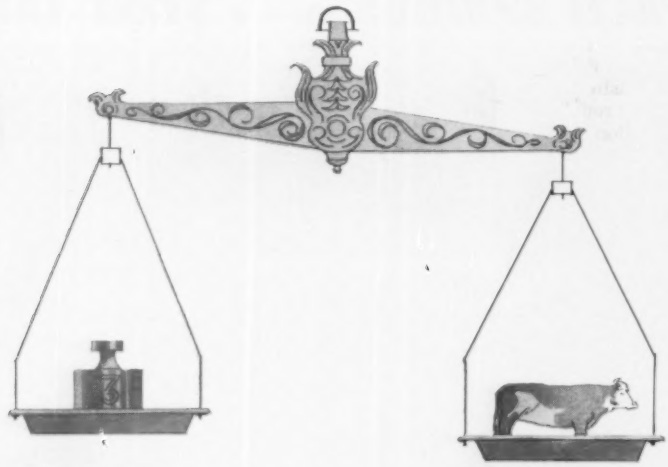
*Dr. Wagner made a study of the community development program conducted by the University of Washington while on a sabbatical leave from Long Beach State College.

The University of Washington Bureau of Community Development over the last ten years has helped 34 communities to help themselves. A careful survey of the results of most of these studies indicates that little overt community action occurred while studies were in progress. Seeds of leadership and self-determination, however, were germinated that grew into action. When a shake manufacturing plant burned in nearby Chehalis, Winlock succeeded in persuading the firm to rebuild its new $750,000 factory in Winlock. The community's 975 citizens contributed $26,000 to purchase a site for the new plant for industrial use and to bring a 10-inch water main to the site. This community has also built a new vocational high school, cleaned up its overgrown cemetery, and demonstrated its faith in democracy by a 90% election turnout.

Stung by Winlock's action on the shake plant, Chehalis went to work with vigor. Following a community development study, its citizens purchased $50,000 worth of stock in the Chehalis Industrial Commission that could only offer faith in the town's future as its security. This enabled them to purchase a 135-acre industrial plot. The Goodyear Tire and Rubber Company agreed to locate there if a rail connection could be assured. Chehalis residents responded by purchasing railroad ties at $4 apiece and then proceeded to lay over 3,000 feet of track. Volunteers, assisted by sandwich-serving wives and sweethearts, also dug a four-foot-deep culvert 30 feet long to provide adequate drainage for the factory site. This community has also voted funds for a new grade school and has improved recreational facilities for all ages.

Other indications of community development's delayed punch are also found in the city of Snoqualmie. The people drained an unsanitary, unsightly swamp area, provided street signs, built a new medical center, and moved 60 houses from an abandoned area across the Snoqualmie River. Thus, by wise planning, 60 families have been retained in the community and Main Street has had a shot in the arm. The town is "alive again." Much better relationships exist between businessmen and the people who live in the community. There are more and better services. Businessmen are optimistic, are looking ahead. There is a greater sense of pride in the community. People have more incentive to shop locally.

Following their community studies, tiny Battle Ground built a new library and a new church; McCleary completed building a town hospital; Snohomish built a city sewage purification plant and staged an im-



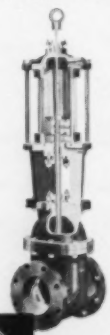
For Value Received

Should price be the sole measure of the value of any product? In almost any business—whether it's "ships, shoes or sealing wax"—you can find some one who will reduce its quality if you require him to reduce its price.

British philosopher John Ruskin once said: "There is hardly anything in the world that someone cannot make a little worse and sell a little cheaper—and the people who consider price alone are this man's lawful prey."

Much credit for the rapid growth of M & H belongs to customer-good-will, customer-confidence, and an extraordinarily healthful customer relationship. Due to a combination of fair dealing, improved product-design, quality materials, delivery schedule-integrity, and honest prices, M & H customers over the years have developed a sense of loyalty to the Company. They simply like to do business with M & H because a basic principle of the Company's sales policy is that the price paid for an M & H product is only one factor of the value the customer receives.

Practical, efficient, dependable field service of M & H products goes on year after year—long after the price is forgotten. No wonder that M & H business volume has grown and grown, and inevitable leadership in the industry has come to the Company and its products.



(No. 5 of a Series)

M&H VALVE
AND FITTINGS COMPANY
ANNISTON, ALABAMA
SUBSIDIARY OF WALWORTH

pressive town-centennial pageant; Grand Coulee, in cooperation with Coulee Dam, Elmira and Electric City, now conducts an annual clean-up, an area Chamber of Commerce has been formed, streets have been improved, city beautification has taken place, a new post office has been built in Coulee Dam, and a new spirit of cooperation now exists among the residents of these four towns. Snohomish and Grand Coulee have won national awards from the Freedoms Foundation, Valley Forge, Pa., for their efforts to bring about an improved understanding of the basic principles underlying the American way of life. ◄◄

How to Stabilize Hillside Land

Subdividing hillside land often corrects many existing hazardous conditions, Leonard Gerkin, Chief Planner for Engineering Service Corporation of Los Angeles, told the Young Home Builders Council meeting in Los Angeles recently.

He pointed out some of the various methods by which this is accomplished. They are:

1—In grading hillside subdivisions, debris and loose dirt left from old construction which has washed to lower land should be either removed or recompacted.

2—Portions of unstable slopes should also be removed and reconstructed by using buttress fills.

3—Hillside drainage should be provided through storm drains and drainage benches for the higher graded slopes to intercept water and avoid bank erosion.

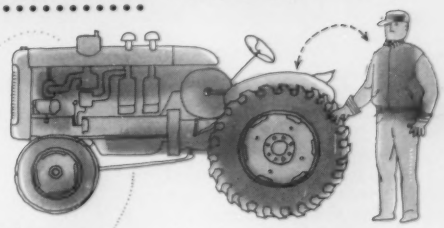
4—To preserve the natural contour of the hills, grading should be minimized, using many small slopes rather than large ones.

He warned that it requires careful planning to provide each plot with a view and to fit together all the slopes, drainage benches, streets, sewers, water lines and drains together and have them come out as they should. He advised that it is wise economy for hillside developers to get the best technical advice available.

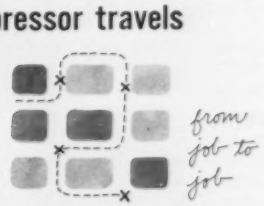
Mr. Gerkin pointed out that many cities have only hillside lands left for development and that although it presents complex problems, he feels that nowhere in the building and engineering field can one exercise initiative and develop new ideas and concepts as in hillside development. ◄◄

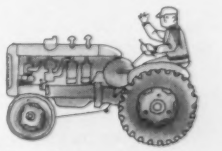
Save time! Cut costs!
SCHRAMM COMPRESSOR/TRACTOR DRIVES AIR TO JOBS . . . AND ALONG WITH JOBS

1 Schramm Pneumatractor combines



2 compressor travels





3 you stop

towing
(no more trucks, crews tied up)

pushing
(and the cost each time they push)

lost time
(while men wait for compressor)

YET YOU PAY LESS for a hard-working 2-in-1 Schramm 125 cfm Pneumatractor than for most anyone else's portable compressor alone!

cost competitive diesel portable 125 . . $5,945
cost Schramm Diesel Pneumatractor . . $5,725
Savings . . $ 220

Write for full information. And see your nearest Schramm Dealer listed in the Yellow Pages.

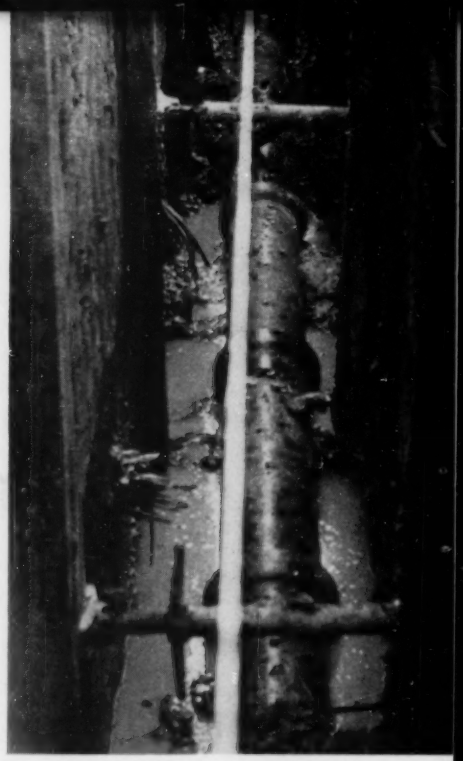
Save with Schramm Heavy Pneumatractor, too! 125 cfm Compressor/Tractor with back hoe and front end loader.

Schramm PNEUMATRACTORS
Self-propelled Air Compressors
603 North Garfield Ave., West Chester, Pa.

A Sewerage System Below Sea Level

. . . in Lockport, La., works well with the proper selection of pipe material and pipe joint

By **CHARLES SMITH***
Consulting Engineer



In many cases the high water table made it necessary to lay pipe under water. Plastisol joints proved their worth under such conditions.

Lockport, La., is a pleasant place to live in but very definitely a difficult place to build a sanitary sewage collection system. This picturesque old French settlement, now in its 125th year, is located on Bayou La Fourche, in southern Louisiana.

Like many bayou-area communities, much of Lockport lies below sea level and that means a high water table and a sewerage system partially under water all or most of the time. Under such circumstances, the construction of the system requires a high degree of planning and choice of materials.

Although cooperation of the entire community played an important role in this project, special credit belongs to Mayor Jeffrey J. Le Blanc and his entire council for their far-sightedness and unstinting efforts. To finance the collection system, one pumping station and a sewage treatment plant, they resorted to the use of general obligation bonds, revenue bonds, property assessments, and the assistance of a federal grant.

The exceptionally high water table meant that a substantial portion of the 45,000-foot collection system would be below sea level. Consequently, infiltration had to be kept to an absolute minimum, requiring the best in pipe and joint materials. Another factor was the unstable condition of the soil. We compensated for this by means of piling, shell-base stabilization, mud sills and concrete. However, even under such remedial action, the pipe joint would have to withstand some vibration and movement.

For this job, we chose Dickey Coupling/Pipe, which incorporates a flexible coupling that compresses when a joint is made. All surfaces remain in compression, forming a joint that remains tight under normal deflection.

Although the system is designed to carry a domestic sewage, there is also the possibility that sometime in the future some industrial waste will be discharged into the sewers. For this reason, and for the sake of long life in general, we selected clay pipe.

Tough Job

This was the most difficult sewer job in all my 25 years of consulting engineering experience. It would have been tough under ideal weather conditions, but, with exceptionally heavy rainfall throughout the construction period, conditions were at their worst.

Even along a mere 25 feet of trench, the soil would change from hard pan, to "black jack," to peat moss, quick sand and other types of soil. To make matters worse, the contractor encountered numerous cypress stumps and logs which had been buried for many years. Some of the logs were six feet or more in diameter with many running almost parallel to the trench.

The contractor kept two or more pumps operating constantly; yet water often ran through the pipe as it was being laid. Heavy machinery used caused the soil to tremble hundreds of feet away.

Under these conditions the Dickey Coupling/Pipe really proved its worth. All the laying crew had to do was clean and prime the joint and then push the pipe together, permitting steady progress under the most trying conditions. In eight months the contractor installed 26,000 feet of six-, eight- and ten-inch sewer pipe.

We have kept in close touch with Lockport officials since the completion of the job early in 1959. All reports indicate that the system is functioning smoothly and there appears to be no perceptible additional load on the treatment plant. Thus we have a good indication that infiltration is being held to a minimum. This will be reflected in operating economies at the plant over the years. As a result of the success of the installation, the city code requires the use of the same pipe for house services.

Industrial and population growth of Lockport was rapid before construction of the sewerage system. Now that it is complete the city officials anticipate a further increase in this growth and prosperity for the community. ◄◄

---

* Mr. Smith is on the staff of J. B. McCrary Company, consulting engineers, Atlanta, Ga., retained by the City of Lockport to design and build the sewerage system.

Business Signs and Advertising Signs

Many statutes and ordinances confuse business signs with outdoor advertising signs. One of the latest is an ordinance for La Habra, Calif. One finds the same lack of precision in much state and municipal legislation.

The La Habra ordinance uses the following ambiguous words: "The only advertising signs permitted are those on the premises of the business they advertise and they are limited in size."

The signs so referred to are not "advertising signs" at all. They are "business signs." A business sign is exactly the kind of sign described above—a sign on the business and relating to it. An advertising sign is a sign located *off* the business and advertising a commodity sold or a service available *elsewhere*. These are two different land uses, as many cases attest. The business sign *identifies*. The advertising sign *advertises*.

Of course, the business sign does to some extent "advertise" the business to which it is attached; but that function is not primary but incidental. Its primary function is identification. Moreover, in this distinction there lies a constitutional point in the law of zoning.

The New Jersey case of *United Advertising Company v. Borough of Raritan*, 11 N. J., page 144 (1952) states the difference between the two land uses in these words:

"The business sign is in actuality a part of the business itself just as the structure housing the business is a part of it, and the authority to conduct the business in a district carries with it the right to maintain a business sign on the premises subject to reasonable regulation in that regard."

In other words, the difference between two signs otherwise exactly alike and differing only in their *location* is this: they are two different land uses and their control or regulation as private property by the police power of the state or of the local government differs. As an advertising sign off the premises the sign may be prohibited as an inappropriate and undesired use of the land. But as a business sign attached to a business the same sign has a legal right to exist provided the business to which it is attached is permitted. The sign tail is a part of the business hide and

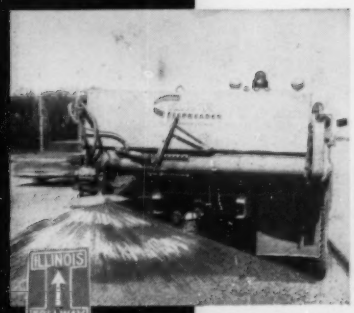
(Continued on page 192)

Flink Spreaders do the Job!

WHATEVER...The Spread—Chlorides or Chips

WHOEVER...The User—Government or Private

WHEREVER...The Job—Town or Country



Flink HDWS4 Completely Hydraulic Tailgate Spreader—A fleet of these efficient rigs help keep traffic rolling on the Illinois Tollway! Left-rear spinner permits easy 2-3 lane spreads in one pass; saves material. Hydraulically operated, cab-controlled, 2-speed auger permits instant change from abrasives to straight rock salt. Volume controlled by hydraulically operated feedgate.

Flink LMC Hopper Spreader—Handles salt, cinders and sand for heavy-duty ice control. Pea gravel and chips for seal coating. Choice of PTO, hydraulic or gasoline engine drive, cab-controlled. Uses the only power transmission of its kind in the field. No worm gears, no "out-of-straight" shafts of U-joints. Differential equalized drive.

Flink HD42 Hydraulic Drive Tailgate Spreader—Consistently picked by smaller communities that need *both* faster ice control and seal coating in the *same* low-cost rig! Self-feeding. Handles all Chlorides and abrasives. Spreads from width of truck to width of street, thick or thin. Replaces tailgate on present trucks. Trips for dumping just as original tailgate did.

BAKER Flink SNOW PLOWS

FOR FAST, LOW-COST SNOW REMOVAL!

Reversible or one-way plows for 1½ to 5 ton trucks and up. Sectional or one-piece, full-length cutting edge trip. Exclusive blade-hinge weldments in place of hinges cut maintenance. Full 3¼" wear on a 6" cutting edge. Operating position adjustable 65° or 75° from horizontal.

Our distributor-field engineers will gladly furnish you with full particulars; just write:

THE Flink co.

STREATOR, ILLINOIS

5509 North Vermillion Street

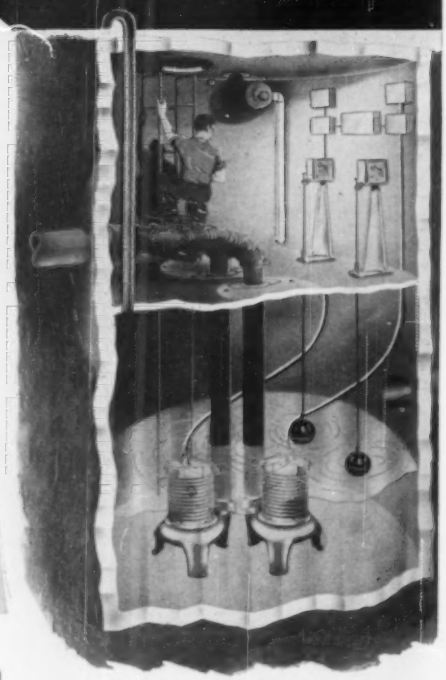
NOW WITH LOW SPEED MOTORS FOR LONGER LIFE

SUBMERSIBLE SEWAGE and SUMP PUMP

For Economical **LIFT STATIONS**

Low Initial Cost

Low Maintenance Cost



FEATURES

A true NON-CLOG impeller, most efficient design for handling rags, stringy material and irregular solids with the liquids. 5" pumps will pass 4" solids.

Send for Bulletin SE-860
See **weil** catalog in Sweet's and Domestic Eng. Cat. Dir.

The **weil** Submersible NON-CLOG Sewage and Sump Pump has proven in thousands of installations that it operates efficiently and economically completely submerged under water. Depth of settings offer no problem; the only requirement is in selecting the proper unit with sufficient head to pump out of the sump. The pump is the same compact close coupled unit regardless of the depth of the pit.

Low Installation and Low Operating Cost

Economy and simplicity of installation — only one piping connection required — and very low maintenance due to the hermetically sealed motor, assure a low initial cost and years of trouble-free operation. No expensive pump house is required to mar the landscape.

Wide Range to Select From

The Submersible Ejector is available in discharges of 3", 4", 5" and 6" with heads to 60 feet and capacities to 2000 GPM. Motors of 1750 RPM or the new long-life slow speed 1150 RPM available for all units. Wide variety of controls available to fit special requirements.

weil PUMP CO.

1518A North Fremont St. • **Chicago 22, Ill.**

(Continued from page 191)

the community may regulate the business sign in various particulars, but it may not prohibit.

THE AMERICAN CITY in February 1953 had an article on the Raritan, N. J., case making, among other points, the same distinction as it made in this article, and by the same writer. The earlier article also called attention to a Vermont decision, *Kelbro, Inc. v. Myrick,* 113 Vermont, page 64 (1943), where business signs were held to be constitutionally protected but advertising signs were not. That case was considered so important that the New York Attorney General intervened and filed a brief upholding the right of the legislative power to prohibit billboards and discussing the limitations on the right of private property to be seen from the street or highway.

ALBERT S. BARD
Attorney & Counselor at Law
New York, New York

Tornado Makes Udall Safest City

Udall, Kan., a town that was nearly wiped off the map by a tornado on May 25, 1955, has installed fallout shelters in its rebuilt churches and schools. This is one of the reasons for the signs placed at highway approaches to the town, proclaiming Udall as "America's Safest City."

The fallout shelter in the Udall high school is a completely underground, windowless, well-protected area topped by a concrete slab six inches thick. It will hold approximately 250 people, more than ample for the 125 high school students and faculty members, and is adjoined by a well-protected area with a kitchen and other survival equipment. The shelter serves also as a tornado refuge.

There is similar construction in a grade school for 150 students.

In addition, two churches have been built with basement protection against fallout and tornadoes. Both have health and cooking facilities. Although the church basements have small windows they can be easily and quickly blocked off for protection in emergencies.

Udall was declared a major disaster area by President Eisenhower on May 27, 1955, and as such received nearly $300,000 in federal funds for rebuilding from the Federal Civil Defense Administration, a predecessor agency to the Office of Civil Defense Mobilization. ◄◄

ZONING AND PLANNING NOTES

Edited by NORMAN WILLIAMS, Jr.

Prohibition of New Residences in Industrial Districts

MICHIGAN. *Lamb* v. *City of Monroe*, 99 North Western (2d) 566 (Supreme (highest) Court, November 25, 1959)

NEW YORK. *Kelly* v. *Kramer*, 197 New York Supplement (2d) 923 (Supreme (lower) Court, January 12, 1960).

There are three types of basic planning and zoning devices whose legal basis is not yet fully established in this country—the compulsory termination of non-conforming uses, the prohibition of residences in industrial districts, and requirements for accessory off-street parking facilities. With the *Harbison* case,* the prevailing view in this country may be said, at last, clearly to uphold the compulsory amortization of non-conforming uses. The two cases cited above involve a major legal step forward towards validating the restriction of residences in manufacturing districts; and the Denver off-street parking cases, represent a major retrogressive landmark in the law involving off-street parking requirements.

The Michigan case involved a vacant tract, located in what started out as a residential subdivision (complete with restrictive covenants), and used for multiple housing during the war and thereafter. However, subsequent and adjacent development was predominantly industrial. A railroad cut through the area and the Detroit-Toledo Expressway passed by within a half a mile (with exits nearby). The area was zoned for heavy industry; and the zoning ordinance forbade new residential construction in such districts. This case involved a challenge to those restrictions.

In the opinion, the court first held that, in view of the changed land use in the area, the residential restrictive covenants should not be enforced. The court made a restatement of the presumption of validity of local ordinances—in fairly strong terms, for a Michigan decision. Coming to the main point, the Court explicitly upheld the prohibition of new residential construction in industrial areas, in what is probably the strongest and clearest holding on the point in this country.

> "In one aspect this zoning case is the reverse of that normally coming to us. Usually a 'lower' use seeks to invade the area of a 'higher' use. The filling station sought to be erected in a one-family residential zone is an example. But here the community seeks to exclude residences from one area zoned industrial and commercial.
>
> "We come, finally, to the novel feature of this case, the exclusion of a so-called 'higher' use in a 'lower' zone, here, specifically, the exclusion of homes in an industrial area. The statement of the problem, however, in terms of higher use versus lower use, or more desirable versus less desirable uses, is misleading. Whether a human habitation, or a factory, is a benign use of land, or one malignant, will depend in each case upon the circumstances.
>
> "Early zoning concerned itself almost exclusively with preventing the invasion of the so-called higher use by the of the so-called higher use by the lower. It was soon realized, however, that the effects of the inverted process might be equally deleterious. The noise, traffic, and fumes of an industrial operation have the same harmful effect upon the homeowners' health and safety when the home goes to the industry as when the industry goes to the home. Likewise the demands of the homeowner upon the industry directed towards an amelioration of such conditions, which are often impossible of curtailment due to the nature of the processes, cause the same undesirable frictions in either case. It was testified that under such circumstances, and as a result of the hazardous and oppressive living conditions, the residences in such a location are gradually abandoned by the orgiinal buyers and it becomes a sub-standard and blighted area. The process was described by the defendant City's planning expert in the following terms:
>
> > ' . . . the initial buyer is still in there. Then he becomes very unhappy with these conditions when they do develop and he moves out at a great loss usually. The second buyer is going to buy these houses when industry is already developed. He sees these trucks going by. He is not going to pay whatever the initial price was, so therefore we have a bunch of substandard dwellings from this sense, not from a physical sense, but from a surrounding sense; therefore, the next person, the second party that gets a hold of that may try to rent it off and split it up into units, try to get more people in at a lower rent. In other words, might try to get two families in by trying to rent out rooms, such as happened in Saginaw where industry has blighted the land. This is the overall. In other words, I'm trying to give you a scale of what happens here. In the second instance, the property is way down in value and it is the first buyer that gets hurt.'
>
> "Thus it is that we find in 'Rathkopf and Rathkopf, The Law of Zoning and Planning (3d Ed.) 14-5, n.6, a list of some 16 areas in which the exclusive industrial zones have been established. The question as to such zoning remains, as before, one of reasonableness under the circumstances. The point to be stressed is that as the Supreme Court of New Jersey[1] put it: 'there is no rule of law, statutory or constitutional, which ordains that any use has an exalted position in a zoning scheme entitling it to move everywhere as of right.' The issue of reasonableness is well illustrated by our recent case of Comer v. City of Dearborn, 342 Mich. 471, 476, 478, 70 N.W. 2d 813, 816, where we found that 'the neighborhood may not be regarded as an industrial one' and hence that 'it is apparent that guests in the proposed establishment will not be subjected to possible ill effects or annoyances resulting from industrial enterprises in the neighborhood. It is held, accordingly, that the application of a zoning ordinance to bar plaintiff from constructing a motel in a district zoned for heavy industry would be unconstitutional. Here, on the other hand, we have an 'accomplished change' to an industrial area dominated by heavy transportation, surrounded by paper plants, a waste canal, and a chemical plant, and permeated by noise and odor, the use of which for residential purposes was found by the trial chancellor to be its worst possible use. Under these circumstances we agree with the trial chancellor that the ordinance, containing the exclusion of residences from the industrial area, are well within the limits of permissible legislative and administrative action. The most that can be said for plaintiff's position is that the issue of the exclusive industrial use is debatable. Such being the case, we see no grounds for judicial interference.
> "The area, the chancellor also observes —'being surrounded by highways and railroads, requires the prospective user to cross highways and railroads, with ever present lack of safety in the most elementary movements. This would apply to adult and child alike. Every movement to an established school or commercial district would be through an industrial area dominated by heavy transportation.
> 'The area is bounded on the south by a waste canal, on the south and west by paper plants, and on the east by a projected chemical plant, giving rise to the ever present evils of noise, odor and traffic generated by industry. This constitutes a real, existing, and in no way fanciful problem of health, safety and welfare'."

The New York decision, while much less significant, nevertheless clearly involves the same point. In this case, a tract of land was zoned partly for business and partly for industrial use; and in the latter district new residential construction was allowed only by special permit. In this case a special permit was denied for a multiple dwelling. The Court upheld such denial, on the ground that such a refusal, based on a concern for density of population and overcrowding, was clearly within the Town's power under the general language of the zoning enabling legislation. The constitutional question was postponed pending trial.

Prohibitions of residences in industrial districts are among the commonest and generally more popular types of new zoning controls, and deservedly so. If it is desirable to prevent one factory from intruding into a residential area, then clearly it is much worse for a group of homes to go into an area which is predominantly industrial. Moreover, scattered residential development in an industrial area tends to break up potentially large industrial sites, and therefore to harm the economic base of the community. This is why such restrictions normally receive strong support from the real estate groups in a community.

Constitutional tests of such restrictions have been rare, and generally unfavorable. With the above two decisions, an important further step has been taken towards having a solid legal base for such regulations. However, until a substantial body of favorable law has accumulated on the point, it is most important that such regulations be written and mapped with great care.

* *Harbison* v. *Buffalo*, 4 New York (2d) 553, 152 North Eastern (2d) 42 (1958).

** *City and County of Denver* v. *Denver Buick and Redding-Miller Inc.*, 347 Pacific (2d) 919 and 954 (Supreme (highest) Court). In this case the Court also made a valiant attempt to turn back the clock on the whole subject of non-conforming uses.

Kozsenik v. Township of Montgomery, 24 N.J. 154, 169, 131 A.2d 1,9.

TAX EQUALIZATION APPRAISALS

Offering a background of a quarter century of

unduplicated experience producing high quality

appraisals for local Tax Equalization Purposes

THE STANDARD OF EQUALITY IN TAX EQUALIZATION

REVALUATIONS

CLT APPRAISALS

COLE · LAYER · TRUMBLE COMPANY

11 WEST MONUMENT AVENUE • DAYTON 2, OHIO

BRANCH OFFICES

405 Allegheny Avenue, Hollidaysburg, Pennsylvania
329 Coddington Building, Charlotte, N. Carolina
415 Congress Street, Portland, Maine
84 Peachtree Street, N.W., Atlanta, Georgia

"We record pump activity and measure flow with this $65 instrument"

TIME RECORDER + TOTALIZER

what T-R-T is — An instrument that automatically records on a strip chart the **"on-off" time** of any pump (or machine) to which it is electrically connected. Strip chart is chronologically-printed, runs up to four months without change.

what T-R-T does — Marks on chart **when** pump starts, **how long** it runs, **when** it stops. Elapsed time meter **totals** operating time. Operations counter (optional at additional cost) records number of pump starts.

how T-R-T is used — **To measure flow,** simply multiply rated capacity of pump per hour by hours of pump operating time. Strip chart furnishes a single-source basis for cost analysis, flow pattern, and pump maintenance. **Many other applications.** For full details, write for Brochure TR-10.

standard INSTRUMENT CORPORATION
657 BROADWAY, NEW YORK 12, N. Y.

WILCO REFUSE BURNER

- Engineered Triple Draft assures fast, clean burning with maximum safety.
- Pre-fabricated in 10 sizes from 15 to 67½ ft. diameter to meet all municipal, community and industrial requirements.
- Big-panel construction makes erection fast and easy.
- Provides lowest-cost incineration per ton with batch loading or continuous feed. Truckloads at a time—no operator required.
- Efficiently burns all types of combustible waste, trash and garbage—no firebricks to maintain.

Hundreds of Wilco Refuse Burners are serving colleges, prisons, communities, municipalities and industry. Write, wire or call today for full information on the burner to meet your needs. Approved by fire underwriters.

wilco machine works, inc.

Phone WH 8-4555 Box 3897AC-2 Memphis 14, Tenn.

Good Roads MACHINERY

TG-500 "ROLLGATE" All-weather Spreader

All new... low-cost Rollgate Spreader delivers big results!

The all new "Rollgate" is a hydraulically driven roll type spreader, designed to fasten to any standard 7½ or 8 foot wide dump truck body. It is one man operated and provides an even flow of materials over the 8 foot width of the spreader. Spreads salt from 75 lbs. per mile to any desired amount or from feather edge to 3" depths when seal-coating.

Hydraulic adjustment provides the most efficient and economical control for spreading sand, salt, cinders, gravel, slag or other materials up to one inch in diameter. The "Rollgate's" speed, versatility, simplicity, and low original cost enables cities, villages and townships to utilize one piece of equipment for spreading operations in all seasons.

For complete details see your local distributor, or write to:

Good Roads MACHINERY **GOOD ROADS MACHINERY Corp.**
MINERVA, OHIO

LEGAL NOTES AND DECISIONS

Prepared by NATIONAL INSTITUTE OF MUNICIPAL LAW OFFICERS, Charles S. Rhyne, General Counsel

Annexation—
Incorporation Petition Too Late

Where petition for annexation was placed in custody of Board of County Commissioners for action held it was "presented" and entitled to precedence over incorporation petition for same territory. *Baumhardt* v. *Mitchell*, 157 N.E.2d 898 (Ohio App., August 13, 1958)

Bonds—Contractor Cannot Recover from Subdivider on Performance Bond

In action by contractor against subdivider on surety bonds given by subdivider to county, held relief denied since this was performance bond and not bond for protection of suppliers of labor and material. *Evola* v. *Wendt Construction Co.*, 338 P.2d 498 (Cal. App., April 29, 1959)

Bonds for Electric System Held Valid

In suit to restrain issuance of non-debt revenue bonds, held since bonds issued for improvements to electric system and payable solely out of electric revenues issuance was valid. *Beam* v. *Borough of Ephrata*, 149 A.2d 431 (Pa., March 24, 1959)

Bonds—Property Owners Association Cannot Contest

In attempted appeal of order of Public Service Commission permitting city to issue waterworks revenue bonds, held unincorporated property owners association did not have power to sue and appeal dismissed. *Lafayette Chap. of Prop. O. Ass'n.* v. *City of Lafayette*, 157 N.E.2d 287 (Ind., March 30, 1959)

Bonds—Referendum Required

In suit concerning validity of revenue certificates issued by city to acquire funds for water and electric systems, held such bonds involved matters which were general, permanent and legislative in character and which must be submitted to referendum election. *City of Lakeworth* v. *State of Florida*, 111 So.2d 433 (Fla. April 29, 1959)

Building Permits—
Refusal to Issue Upheld

In action to compel re-issuance of building permit for gasoline service station, held alleged facts that property had been purchased for more than it was worth and other sums expended because of existence of prior permit did not make permit irrevocable, *Tremarco Corp. v. Garzio*, 150 A.2d 799 (N. J. Super., App. Div. May 4, 1959)

City Council—
Recall of Member Refused

Where grounds stated in certificate for recall of city councilman were merely political criticisms, held no sufficient showing was made of malfeasance in office and recall provisions of city charter would not be invoked. *Jacobsen* v. *Nagel*, 96 N.W.2d 569 (Minn., May 8, 1959)

City Employees—Airport Manager's Appointment Invalid

Where mayor's choice for position of manager of city airport stood sixth of eight candidates after civil service examination and mayor coerced other candidates to withdraw, held mayor's appointment of such person invalid. *Gottlieb* v. *Kryzan*, 157 N.E.2d 886 (Ohio App., Jan. 13, 1958)

Notice of Claim Held Insufficient

In personal injury action against city by person who stepped in hole in street after alighting from city bus, held action dismissed since notice of claim which merely stated name of intersection where accident occurred was insufficient. *Gonzales* v. *City of Corpus Christi*, 323 S.W.2d 495 (Tex. Civ. App., April 22, 1959)

Notice of Claim—
Late Filing Denied

Where deceased child's father waited more than statutory period before making claim against city for negligence causing child drowning in city lake, held claim dismissed. *Pace* v. *Munday*, 323 S.W.2. 609 (Tex. Civ. App., April 20, 1959)

(Continued on page 196)

products for
the public good
SINCE 1898
THEY PROVE THEIR WORTH
. . . The elections of a week ago demonstrated once more the value of voting machines . . . The machines assure an accurate count . . . human counting in a race as close as that . . . would surely have resulted in a call for a recount . . . but the machines have no emotions and no preferences. Voting machines are more than a convenience. They are a necessity . . . they not only increase the speed and accuracy of the tabulation, they reduce confusion and opportunity for election chicanery.
from the Mansfield News-Journal, Mansfield, Ohio
AUTOMATIC
VOTING MACHINE
division of Rockwell Manufacturing Co.
Jamestown, N. Y.

(Continued from page 195)

Notice of Claim—Not Applicable To Workmen's Compensation

In suit concerning injury to city employee received when in performance of his duties, held charter provision that city should not be liable for injuries to any person unless notified within forty-five days of such injury was not applicable to workmen's compensation claim. *City of Austin* v. *Clendennen*, 323 S.W.2d 158 (Tex. Civ. App., March 18, 1959)

Nuisance—Sewer District Ordered to Abate

In action to require sanitary district to abate nuisance caused by discharge of untreated sewage into river, held abatement of discharge of raw sewage is direct obligation of governmental function of sanitary district. *Ruth* v. *Aurora Sanitary District*, 158 N.E.2d 601 (Ill., May 22, 1959)

Off-Street Parking—Condemnation Enjoined

In suit to enjoin city from proceeding with condemnation of certain real estate, held statute providing for off-street parking facilities was unconstitutional for failure to make appropriate provisions for securing payment of compensation. *Remington Realty Co.* v. *City of Providence*, 151 A.2d 376 (R. I., May 19, 1959)

Police—Dismissal Upheld

In disciplinary proceeding against patrolman held in absence of patrolman, held dismissal would not be set aside. *Grottano* v. *Kennedy*, 157 N.E.2d 632 (N. Y., March 13, 1959)

Police—Failure to Follow Orders Justifies Discharge

Where officer was accused by citizen of attempting to commit felony and when Chief of Police ordered officer to submit to a lie detector test he refused, held this justified his discharge notwithstanding that such tests are not admissible in evidence in state courts. *Frazee* v. *Civil Service Board of City of Oakland*, 338 P.2d 943 (Cal. App., May 13, 1959)

Sidewalks—Financing From General Fund Void

In action concerning city ordinance authorizing construction of sidewalk as general improvement with cost payable entirely from municipal tax revenues, held ordinance void. *Breuer* v. *Borough of Montvale*, 151 A.2d 53 (N. J. Super., App. Div., May 6, 1959)

Sidewalks—Injury From Fall—No Liability

In action by pedestrian for injuries sustained from fall over raised portion of sidewalk, held defendant not liable since pedestrian cannot be oblivious to defects in sidewalk which reasonable person could not help but notice. *Citro* v. *Stevens Institute of Technology*, 150 A.2d 678 (N. J. Super., App. Div., April 27, 1959)

Special Assessments Upheld

In proceeding concerning special assessments levied against lots to pay for installation of curbs, storm sewers and other appurtenances on roads, held assessments valid. *Village of Northbrook* v. *Steerup*, 158 N.E.2d 630 (Ill., May 22, 1959)

Streets—Car Skids on Ice—City Liable

In action by motorist against borough for injuries sustained when automobile skidded on ice which had formed on street because of defective drainage and smashed into concrete abutment, held borough liable. *Mitchell* v. *Borough of Rochester*, 150 A.2d 338 (Pa., April 20, 1959)

Streets—City's Easement Is Upheld

Where previous judgment provided that use by general public had given city easement over street for use as public highway, held city had right to maintain sewer and water pipes in subsurface of such streets. *Elmhurst National Bank* v. *City of Chicago*, 157 N.E.2d 781 (Ill. App., March 23, 1959)

Streets—Damage to Private Property—City Not Liable

In landowner's action against city for damages caused by landslide resulting from cutting into bank in improving street, held since no negligence was shown in making cut city not liable. *Hagen* v. *City of Seattle*, 339 P.2d 79 (Wash., May 14, 1959)

Streets—Fall on Bridge—City Not Liable

In action by pedestrian for injuries sustained when she stepped onto bridge depressed below level of street of which it was part, held city not liable. *Green* v. *Town of Wilmington*, 158 N.E.2d 143 (Mass., May 1, 1959)

For all-'round deodorizing...

ROUNDS

Fragrant, laborless deodorant discs for urinals, bowls, garbage pails, lockers, closets

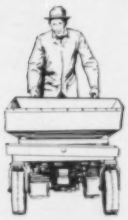
Deodoroma ROUNDS cost in use averages only a *fraction* of one cent a day. Rounds are formed under 70,000 pounds pressure: are dense and durable. Fragrance is locked in: lasts until the last particle has vaporized—there's no harsh "moth cake odor." Packed eight to the telescoping box—each Round sealed airtight—easy-to-shape Holzit wire holder in every box. For literature write to The C. B. Dolge Company, Westport, Conn.

For free sanitary survey of your premises ask your Dolge service man

Dependable DOLGE WESTPORT, CONNECTICUT

SAFE PASSAGE FOR PERSONNEL, PUBLIC!

NEW!



POWER SPREADER For Salt-Sand

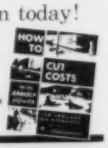
Gravely Power quickly eliminates work stoppage caused by ice or snow. Personnel, customers, vehicles pass easily, safely when walks and drives are free of ice and snow.

4 Ice, Snow Removal Tools!

The Gravely powers 4 ice and snow removal Tools to conquer snow problems quickly, effectively! 48" Snowplow, 26" Snowblower, 48" Power Brush and NEW Power Spreader. Write for more information today!

GRAVELY TRACTORS
P.O. BOX 636K DUNBAR, W. VA.

NEW! FREE INDUSTRIAL CATALOG



Streets—Injury to Bicyclist

In action for injuries sustained when person riding bicycle after dark rode into clothes line stretched across street, held question of constructive notice of line was for jury. *Burgdorf* v. *Holme-Shaw*, 96 N.W.2d 164 (Mich., April 13, 1959)

Streets—Obstruction Ordered Removed

Where landowner fenced in land platted as street and used it for cultivation, held he could not acquire right to obstruct street by prescription. *Salyers* v. *Tackett*, 322 S.W.2d 707 (Ky., Dec. 12, 1958)

Taxation—Assignee of Lien Denied Recovery

In suit by assignee of tax bill to enforce lien, held it was error to refuse testimony concerning nonperformance of work even though it appeared city authorities had accepted improvement. *Scales* v. *Butler*, 323 S.W.2d 25 (Mo., App., April 2, 1959)

Taxation—Real Estate Assessment Upheld

In taxpayers' petition to prohibit taxation of realty in manner not authorized by law based on allegation that assessments were not uniform, held complaint dismissed due to uncertainty. *Carr* v. *Assessors of Springfield*, 157 N.E.2d 880 (Mass., April 22, 1959)

Taxation—Taxes Paid Voluntarily Not Recoverable When Ordinance Declared Invalid

Where taxicab owner for 11 years paid street tax, he was not entitled to recover when ordinance declared unconstitutional. *City of Memphis* v. *W. M. S. Company*, 326 S.W.2d 828 (Tenn. App., March 17, 1959)

Tort Liability—Police Surety Bond Not Waiver of Immunity

In tort action against city and surety company, held city immune from tort liability based on actions of police officers and existence of surety bond for police use did not constitute waiver of immunity. *McKenzie* v. *City of Florence*, 108 S.E.2d 825 (S. C., May 14, 1959)

Trailer Parks—Ban in Residential Zone Upheld

In action concerning zoning regulations on trailer parks, held regulations forbidding operation of trailer park in residential zone were valid as applied to plaintiff who had right to operate trailer park in such zone only as non-conforming use. *Jensen's Inc.* v. *Town of Plainville*, 150 A.2d 297 (Conn., March 31, 1959)

Trailers—Prohibition in Residential District Upheld

In action attacking ordinance prohibiting landowner from retaining trailer-home on her lot located in residential area of township, held ordinance valid even though lot was rural and undeveloped. *Napierkowski* v. *Gloucester Tp.*, 150 A.2d 481 (N. J., April 20, 1959)

Urban Redevelopment—Proposed Referendum Upheld

In suit to enjoin city officers from holding referendum on redevelopment of certain area, where voters had previously rejected same resolution for redevelopment, held injunction denied. *Bishel* v. *City of Middletown*, 151 A.2d 893 (Conn., Super., Middlesex Cty., Jan. 23, 1959)

Bradley

wash many hands fast

SHOWERS

DUO-WASHFOUNTAINS

CIRCULAR WASHFOUNTAINS

Sanitary Bradley *Foot-Control* eliminates faucets and faucet maintenance forever. You use your *foot* to wash your hands—touch nothing but clean, warm, running water. The bowl rinses clean and is far easier to keep sanitary than the many ordinary basins it replaces.

If you have to wash many hands fast, write today for the New Bradley Catalog #6004!

BRADLEY WASHFOUNTAIN CO.
2333 West Michigan Street
Milwaukee 1, Wisconsin

BRADLEY
washfountains

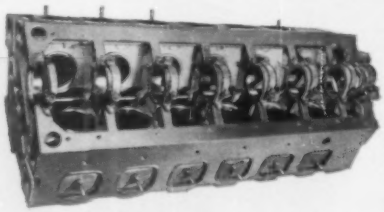
ROILINE GAS ENGINES

are advanced, dependable, and proven in Municipal Service.

In-line 6, V-8, or V-12 cyls.—up to 706 hp.

HEAVY DUTY... LONG LIFE

A look inside these engines reveals the rugged construction that can be relied upon for dependable service.

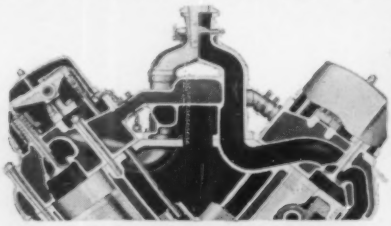


Internally ribbed crankcase gives solid crankshaft support. Extra rear main bearing absorbs side thrust.

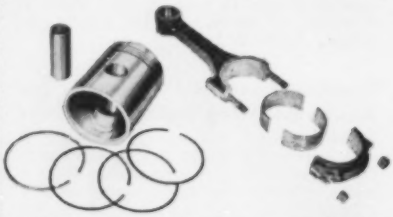
Large diameter, short in length, the rugged counterbalanced crankshaft handles power without vibration. It has generous bearing areas.

MORE POWER... BETTER ECONOMY

These ROILINE engines are the most modern, most powerful natural gas-butane-gasoline engines in their class.



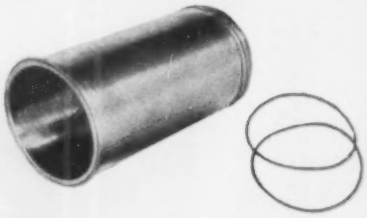
The "Easy Flow" manifold design provides perfect fuel and air distribution to all cylinders through large individual intake ports.



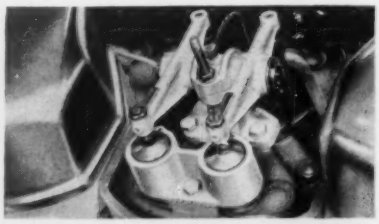
Aluminum pistons are taper cam ground. Full floating piston pins. Connecting rods have big wear-resisting replaceable bearings.

EASY MAINTENANCE... QUICKLY SERVICED

All wearing parts have replaceable bearing surfaces. *All* routine maintenance points are readily accessible.



Long wearing cylinder sleeves are easily replaced and cost far less than reboring cylinder block and installing oversize parts.

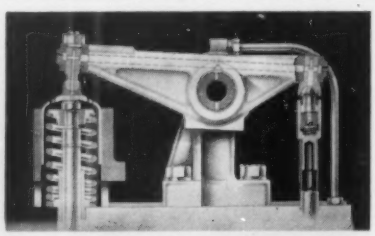


Cylinder heads can be removed by one man without disturbing manifold, carburetor, or controls. Note guided valve mechanism.

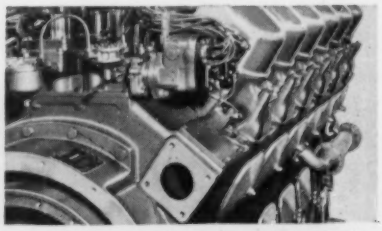
SMOOTH—QUIET... CLEAN—COOL

Benefits from newest design features mean more comfortable operating conditions and easier maintenance.

499 *Write for literature*



Hydraulic "Zero-Lash" lifters eliminate noise and adjustments and extend valve life. Engines are practically vibration-free.



Exhaust manifold is water cooled and integrally cast into the crankcase to provide cooler operating area and fast warm-up of the engine.

WAUKESHA MOTOR COMPANY, WAUKESHA, WISCONSIN / **New York • Tulsa • Los Angeles**
Factories: Waukesha, Wisconsin and Clinton, Iowa

RECENT CITY MANAGER APPOINTMENTS

Robert A. Finley, Mt. Lebanon, Pa. | *A. O. Hustvedt, Otsego, Mich.* | *E. L. Carlsen, Ogden, Utah* | *Geo. C. Benway, Claremont, N. H.* | *J. Robert Crowell, Dayton, Tenn.* | *Vernon Boxell, Fairfield, Iowa*

CHARLES R. ALLEN, administrative assistant of Glendora, Calif., has recently been appointed manager of that city succeeding Carl E. Gruendler.

CRAIG L. BARNHARDT, manager of Jacksonville, N. C., has been appointed manager of Hickory, N. C., succeeding Richard W. Mayo. Mr. Barnhardt was previously manager of New Bern, N. C.

GEORGE C. BENWAY, of Old Saybrook, Conn., has been appointed manager of Claremont, N. H., succeeding Roy G. A. Petterson.

THOMAS A. BOOTHE has been appointed manager of Cleveland, Tex. He has been in private business.

VERNON BOXELL, manager of Mound, Minn., was recently appointed manager of Fairfield, Iowa, succeeding Larry L. Stanley. Mr. Boxell previously served as superintendent of utilities of Howard Lake, Minn.

EDWARD LYLE BROWER, assistant manager of Waynesboro, Va., is now manager of Woodstock, Va.

EDWARD L. CARLSEN, acting manager of Ogden, Utah, has been appointed manager of that city succeeding Walter R. L. Taylor. Mr. Carlsen formerly served in the public works department and as auditor and finance director for that city.

HOMER C. CHANDLER, previously manager of Monticello, Utah, has been appointed manager of Millbrae, Calif.

GEORGE L. COMERFORD, acting manager of Joliet, Ill., has been appointed manager, succeeding Chester B. Lewis. Mr. Comerford previously served as comptroller and purchasing agent for Joliet.

J. ROBERT CROWELL, assistant manager of Kissimmee, Fla., was recently appointed manager of Dayton, Tenn., succeeding Jess Clark.

AUGUST A. DEBARD, JR., manager of Halifax, N. S., Canada, for eight years, has recently been appointed manager of Peoria, Ill., succeeding Herbert D. Fritz. Mr. DeBard formerly was finance director of Milford, Conn.

GORDON DILLON, manager of Ipswich, Mass., has recently been appointed manager of North Miami Beach, Fla., succeeding Allen L. Wilcox. Mr. Dillon was formerly manager of Claremont, N. H., and North Adams, Mass.

DON H. DOLLISON has been appointed manager of South Pasadena, Calif., succeeding Frank H. Clough, who is retiring because of health.

CLYDE H. EMMONS, manager of Paris, Tex., was recently appointed the first manager of McKinney, Tex. Mr. Emmons was previously city engineer of Abilene, Tex.

LEO S. FANCEY, formerly administrative assistant of Antioch, Calif., has been appointed manager, succeeding Phil Minner.

ROBERT A. FINLEY, manager of Adrian, Mich., was recently appointed manager of Mt. Lebanon, Pa., succeeding John A. Paulus, now manager of Rye, N. Y. Mr. Finley previously served as manager of La Grange, Ill.

WILFRED E. FROEHLICH, manager of Avalon, Pa., has been appointed manager of Olivette, Mo., succeeding J. Eldon Mariott.

GENE GATLIN, manager of Brownsville, Tex., is the first manager of Texarkana, Tex. He was previously manager of Gilmer, Orange, and Edinburg, Tex.

BRUCE SLOAN GAY has been appointed manager of Big Stone Gap, Va., succeeding Harry H. Hug. Mr. Gay was previously housing inspector of Raleigh, N. C.

SAMUEL GESKO, JR., administrative assistant in Ann Arbor, Mich., has been appointed manager of Three Rivers, Mich., succeeding Clifford Miles.

WILLIAM D. GOLIGHTLY, assistant manager of Clarksburg, W. Va., has been appointed manager of New Holland, Pa., succeeding Walter K. Smith.

JAY GREGG, manager of South Berwick, Me., has been appointed manager of Watsontown, Pa., succeeding J. G. Joseph. Mr. Gregg was previously council president of Grove City, Pa.

EDWARD W. HAGAR, manager of Carmel, Me., has been appointed manager of South Berwick, Me., succeeding Jay Gregg who is now manager of Watsontown, Pa.

((Continued on page 201)

Gordon Dillon, N. Miami Beach, Fla. | *Chester A. Kunz, Seward, Alaska* | *R. A. Sayers, Columbus, Ga.* | *C. H. Emmons, McKinney, Tex.* | *Jerry M. Smith, Parsons, Kan.* | *A. A. DeBard, Jr., Peoria, Ill.*

time

city managements' greatest single ...cost factor!

control it with

Lathem

TIME RECORDERS
TIME STAMPS
WATCHMAN CLOCKS

You can eliminate time leaks and increase the efficiency of all departments with a Lathem machine. Built for a long life of care-free service, Lathem machines are especially designed and engineered to provide for ALL of your time recording needs.

Just check this long list:

1) *payrolls* 2) *parking lots* 3) *garages* 4) *public buildings and watchmen's rounds* 5) *dating and numbering papers* 6) *mail arrival* 7) *booking and releasing prisoners* 8) *records of sequence handling* 9) *entry of important records and deeds and many others.*

Write, wire or call for complete information.

LATHEM TIME RECORDER COMPANY

82 Third Street, N.W. Atlanta, Georgia

GENTLEMEN: I'd like to hear more about the fabulous NEW Lathem Time Recorder.

NAME_____ TITLE_____

DEPARTMENT_____

ADDRESS_____

CITY_____ STATE_____

FRANKLIN FABRICS UNIFORMS

373

Range 373 has symbolized the top quality Police and Fire Department Uniform Fabrics for over 25 years.

It is made in all weights for all climates.

Stock dyed
2 ply
Fast Colors
Uniformity of Shade

Corresponding qualities in worsted whipcords and elastiques; gabardines and tropicals in either 100% worsted or worsted/dacron blends.

TO BE SURE, SPECIFY

FRANKLIN WORSTEDS

for additional information write to—

David E. Singer, Sales Agent
FRANKLIN WORSTED COMPANY
40 East 34th St., New York 16, N. Y.

(Continued from page 199)

RAYMOND E. HARBAUGH, manager of Galesburg, Ill., has been appointed manager of Oshkosh, Wis., succeeding H. S. Thorgrimsen. Mr. Harbaugh was previously manager of Wood River, Ill.

ANDERS O. HUSTVEDT, public works director of Flushing, Mich., has been appointed manager of Otsego, Mich., succeeding Donald R. Foster.

FRANK H. KINGSLEY has been appointed manager of Lebanon, N. H., succeeding Jacob P. Dumelle.

CHESTER A. KUNZ has been appointed manager of Seward, Alaska, succeeding William L. Bordwell. Mr. Kunz, who is a retired admiral, was previously administrative assistant in the public works department of Sunnyvale, Calif.

LYE LINSTROM, acting manager of Crete, Neb., has been appointed manager of Valentine, Neb., succeeding Richard D. Land. Mr. Linstrom was previously city clerk of Crete.

CLOVIS D. MANN, assistant manager of Wichita Falls, Tex., has been appointed manager of Burkburnett, Tex., succeeding A. W. Newman.

C. W. MASONHEIMER, assistant city manager of Modesto, Calif., has been appointed as the first city manager of Watsonville, Calif.

GEORGE T. MEHOLICK, manager of Marquette, Mich., is now manager of Portsmouth, Ohio, succeeding George W. Mingle, now manager of Delray Beach, Fla. Mr. Meholick was previously manager of Wakefield and Negaunee, Mich.

ARTHUR J. MULVIHILL, former manager of Slater, Mo., has been appointed manager of Mascoutah, Ill. He was previously manager of DeSoto and Lebanon, Mo.

HENRY B. NABERS, manager of Abilene, Tex., has been appointed the first manager of Spokane, Wash. Mr. Nabers has previously been manager of Greenville, Sweetwater, and Waxahachie, Tex.

PAUL D. NOLAND, research assistant for the Texas Municipal League, was recently appointed the first manager of Abernathy, Tex.

KARL H. L. PETERMANN, acting manager of Crystal Lake, Ill., has been appointed manager of that city, succeeding James R. Schubert.

CLINTON B. PETRY, city clerk of South Miami, Fla., for three years, has been appointed manager of that city, succeeding L. M. McConnell. Mr. Petry was previously a management engineer for the Secretary of the Army in Washington, D. C.

RALPH A. SAYERS, formerly commissioner and mayor of Columbus, Ga., has been appointed manager of that city succeeding J. A. Willman. Mr. Sayers was previously in private business in Columbus.

G. A. SCRIMSHIRE has been appointed manager of Uvalde, Tex., succeeding R. W. Evans. Mr. Scrimshire formerly served as manager at Carrizo Springs, Mission, and Irving, Tex.

WILLIAM S. SEAMAN, treasurer of Uranium City, Saskatchewan, Can., has been appointed manager of that city succeeding G. J. Darychuk. Mr. Seaman was formerly secretary-treasurer of Fillmore, Saskatchewan.

GEORGE E. SMITH, formerly an engineer with the highway department of Cook County, Ill., has been appointed manager of Colonial Heights, Va. Mr. Smith was previously manager of Western Springs, Ill.

JERRY M. SMITH, assistant manager of Lawrence, Kan., has recently been appointed manager of Parsons, Kan., succeeding Bernard P. Budd.

ROBERT M. TINSTMAN, previously administrative assistant of Kansas City, Mo., has been appointed manager of Abilene, Tex., succeeding Henry B. Nabers.

ARCHIE N. WALKER, manager of Groves, Tex., has been appointed manager of Orange, Tex., succeeding Lee S. Vickers.

EDWARD A. WOLESKE has been appointed manager of Marinette, Wis., succeeding K. W. Gardiner.

ORIN F. NOLTING
Executive Director
International City Managers' Association

Automatic Toll Collectors

Automatic toll collection equipment has been installed on the 20-year-old Centennial Bridge across the Mississippi River at Rock Island, Ill. The bridge is operated by the Bridge Commission appointed by the Mayor and Council of the City of Rock Island.

Seeking faster movement of traffic and greater protection for bridge revenue, a contract for $40,000 was let to fit the bridge for the automatic equipment. A new treadle system and two more toll booths were the main changes. The additional toll houses will permit tolls to be paid from the left side of cars using the outside lanes which will be used for passenger cars only.

The cost of the automatic toll equipment manufactured by the Grant Money-Meter Div. of Universal Controls, Inc., Providence, R. I., will be spread over a three-year span through a lease arrangement with the company making the installation at a cost of $15,000 per year.

For the fiscal year ending March 31, 1960, there were 4,767,309 vehicles crossing the bridge as compared with 3,833,982 vehicles the previous year. The income for the fiscal year amounted to $543.448 compared with $477,393.

A new lighting system in the toll collecting area uses SHO Westinghouse lamps.

ROBERT HEITSCH
City Manager

KOHLER
ELECTRIC
PLANTS

Cost-saving independent power

Emergency...Portable

Kohler emergency plants, equipped with automatic transfer switch and installed as specified by the OCDM —will qualify you for the purchase of radio equipment with matching Federal funds . . . Portable Kohler models provide the compact, reliable power you need for street repairs, fire and rescue trucks, park maintenance . . . Sizes to 100KW, gasoline and diesel. Write for folder H-45.

KOHLER CO. *Established 1873* KOHLER, WIS.

MODEL 5RM21, *5KW, 115 volt AC.*
Air-cooled, gasoline. Remote start.

KOHLER OF KOHLER

Enameled Iron and Vitreous China Plumbing Fixtures • All-brass Fittings • Electric Plants • Air-cooled Engines • Precision Controls

CONVENTIONS — WHEN AND WHERE

Conventions listed this month for the first time are indicated by an asterisk (*)

Oct. 11-14—Atlantic City, N. J.
EASTERN WATER COMPANY CONFERENCE (formerly PENNSYLVANIA WATER WORKS Assoc.) Annual Meeting (Chalfonte Hotel). Sec., R. L. Tyler, 1 Morgan Ave., Palmyra, N. J.

***Oct. 13-14—Ithaca, N. Y.**
CITY AND VILLAGE PUBLIC WORKS SCHOOL. (Arranged cooperatively by the Conference of Mayors and other municipal officials of the State of New York, and Cornell University.) Hollister Hall, Cornell University, Ithaca, N. Y.

Oct. 16-19—Galveston, Texas
AMERICAN WATER WORKS ASSOC.—Southwest Section, Annual Meeting (Galvez Hotel). Sec., Leslie A. Jackson, Municipal Water Works, Robinson Memorial Auditorium, Little Rock, Ark.

Oct. 16-20—San Francisco, Calif.
INTERNATIONAL CITY MANAGER'S ASSOC. Annual Meeting (Sheraton-Plaza Hotel). Exec. Dir., Orin E. Nolting, 1313 East 60th Street, Chicago 37, Ill.

Oct. 16-22—San Diego, Calif.
VIII INTER-AMERICAN MUNICIPAL CONGRESS. Bi-annual Meeting (El Cortez Hotel). Exec. Sec., Dr. Robert F. Wilcox, San Diego State College, San Diego, Calif.

Oct. 17-18—Little Rock, Ark.
ARKANSAS MUNICIPAL LEAGUE. Annual Meeting (Marion Hotel). Exec. Dir., Glenn G. Zimmerman, 416 Maple, North Little Rock, Ark.

Oct. 17-21—Chicago, Ill.
48TH ANNUAL NATIONAL SAFETY CONGRESS. (Conrad Hilton, Pick-Congress, Sheraton Towers Hotels). Sec., R. L. Forney, National Safety Council, 425 N. Michigan Ave., Chicago 11, Ill.

Oct. 19-21—Des Moines, Iowa
AMERICAN WATER WORKS ASSOC.—Iowa Section. Annual Meeting (Fort Des Moines Hotel). Sec.-Treas., J. J. Hail, Water Dept., City Hall, Dubuque, Iowa.

Oct. 20-22—Canton, Ohio
STREET MAINTENANCE AND SANITATION OFFICIALS. Annual Meeting (Onesto Hotel). Exec. Sec., Evelyn M. Murgatroyd, 71 No. Union St., Akron 4, Ohio.

Oct. 20-22—Atlantic City, N. J.
AMERICAN WATER WORKS ASSOC.—New Jersey Section. Annual Meeting (Madison Hotel). Sec., A. F. Pleibel, R. D. Wood Co., 683 Prospect St., Maplewood, N. J.

Oct. 20-22—Walla Walla, Wash.
PACIFIC NORTHWEST POLLUTION CONTROL Assoc Annual Meeting (Marcus Whitman Hotel). Sec.-Treas., Gilbert H. Dunstan, Box 176, Pullman, Washington.

Oct. 21-22—Boston, Mass.
MASS. FEDERATION OF PLANNING BOARDS. Annual Meeting (Hotel Vendome). Sec., C. M. Lagace, 81 Middle St., Gloucester.

Oct. 23-25—Wichita, Kansas
KANSAS ASSOC. OF MUNICIPAL AUTHORITIES. Annual Meeting (Broadview Hotel). Asst. Sec., A. D. McGuire, P. O. Box 99, Overland Park, Kansas.

Oct. 23-26—Washington, D. C.
NATIONAL INSTITUTE OF GOVERNMENTAL PURCHASING. Annual Meeting (Shoreham Hotel). Exec. V. P., Albert H. Hall, 1001 Connecticut Ave., N.W., Washington, D. C.

Oct. 23-26—Hamilton, Ontario
COMMUNITY PLANNING ASSOC. OF CANADA. Annual Meeting (Royal Connaught Hotel). Sec.-Treas., Miss J. M. Laventure, 77 MacLorea St., Ottawa, Ontario, Canada.

Oct. 23-26—Los Angeles, Calif.
LEAGUE OF CALIFORNIA CITIES. Annual Meeting (Biltmore Hotel). Assoc. Dir., Howard Gardner, Hotel Claremont, Berkeley, Calif.

Oct. 23-27—Buffalo, N. Y.
CANADIAN INSTITUTE OF SEWAGE AND SANITATION. Annual Meeting (Statler Hilton). Sec.-Treas., Dr. A. E. Berry, 72 Grenville, Toronto, Ontario, Canada.

Oct. 23-27—Philadelphia, Pa.
AMERICAN INSTITUTE OF PLANNERS. Annual Meeting (The Warwick Hotel). Exec. Dir., W. C. Dutton, Jr., Suite 410, 2400 16th St., N.W., Washington, D. C.

LoDaL®
Grapple Tilt
HYDRAULIC BUCKET

The LoDal Grapple Tilt Bucket is especially designed as the most effective machine made today for sweeper pick-up. The 42 inches of pavement drag gives completely clean pick-up with no need for manpower hand shoveling into the bucket. The hydraulic grapple (with balanced closing action) does all the work! Designed for a self loading truck to which it is mounted and for loading other units. Bucket capacities 3/4 and 1 cubic yards.

To Save You Money—

May we send you detailed information?

LoDal, Inc.
NORWAY, MICHIGAN

Oct. 23-28—New York, N. Y.
PUBLIC PERSONNEL ASSOC. Annual Meeting (Hotel New Yorker). Dir., K. O. Warner, 1313 E. 60th St., Chicago, Ill.

Oct. 24-26—Colorado Springs, Colo.
AMERICAN WATER WORKS ASSOC.—Rocky Mt. Section. Annual Meeting (Broadmoor Hotel). Sec., H. F. Kepner, 550 Alcott, Denver, Colo.

Oct. 24-26—Colorado Springs, Colo.
ROCKY MOUNTAIN SEWAGE AND INDUSTRIAL WASTES ASSOC. Annual Meeting (Broadmoor Hotel). Sec.-Treas., Verne E. Plath, P. O. Box 149, Englewood, Colo.

Oct. 24-28—Monticello, Ill.
AMERICAN WATER WORKS ASSOC.—Illinois and Indiana Annual Water Works Management Short Course (Allerton Park). General Chairman, T. E. Larson, Ill. State Water Survey, Box 232, Urbana, Ill.

Oct. 25-27—Long Beach, Calif.
AMERICAN WATER WORKS ASSOC.—California Section. Annual Meeting (Lafayette Hotel). Sec., F. F. Watters, State Bldg., Civic Center, San Francisco, Calif.

Oct. 26-27—New Haven, Conn.
NEW ENGLAND SEWAGE AND INDUSTRIAL WASTES ASSOC. Annual Meeting (Taft Hotel). Sec.-Treas., Earl R. Howard, Bureau of Public Works, Hartford, Conn.

Oct. 26-28—Columbus, Ohio
AMERICAN WATER WORKS ASSOC.—Ohio Section. Annual Meeting (Deshler-Hilton Hotel). Sec., J. Howard Bass, Henry P. Thompson Co., 1720 Section Rd., Cincinnati, Ohio.

Oct. 30-Nov. 1—W. Palm Beach, Fla.
FLORIDA LEAGUE OF MUNICIPALITIES. Annual Meeting (George Washington Hotel). Exec. Sec., Gordon T. Butler, 218 West Adams St., Room 301 (P. O. Box 778), Jacksonville, Fla.

Oct. 31-Nov. 4—San Francisco, Calif.
AMERICAN PUBLIC HEALTH ASSOC. Annual Meeting (Civic Auditorium). Dir., Dr. Berwyn F. Mattison, 1790 Broadway, N. Y. 19.

***Nov. 2-4—Washington, D. C.**
AMERICAN WATER WORKS ASSOCIATION—Chesapeake Section. Annual Meeting (Sheraton-Park Hotel). Sec., Carl J. Lauter, 4955 33rd St., N.W., Washington, D. C.

***Nov. 3-4—Omaha, Neb.**
NEBRASKA SEWAGE AND INDUSTRIAL WASTES ASSOC.—Annual Meeting (Castle Hotel). Sec.-Treas., E. Bruce Meier, 508 So. 19th St., Kirkham, Michael & Assoc., Omaha 2, Neb.

***Nov. 9-11—Winston-Salem, N. C.**
NORTH CAROLINA SEWAGE AND INDUSTRIAL WASTES ASSOC.—Annual Meeting (R. E. Lee Hotel). Sec.-Treas., T. Z. Osborne, Rm. 309, Municipal Bldg., Greensboro, N. C.

***Nov. 10-12—Sitka, Alaska**
LEAGUE OF ALASKA CITIES. 10th Annual Convention (City Hall). Exec. Sec., Mrs. Lucy Mick, Box 1764, Palmer, Alaska.

***Nov. 13-16—Fort Lauderdale, Fla.**
FLORIDA SEWAGE AND INDUSTRIAL WASTES ASSOC.—Annual Meeting (Galt Ocean Mile Hotel). Sec.-Treas., Arthur R. Finney, Jr., 4801 117th Ave., Miami 55, Fla.

***Nov. 13-16—Fort Lauderdale, Fla.**
AMERICAN WATER WORKS ASSOC.—Florida Section. Annual Meeting (Galt Ocean Mile Hotel). Exec. Sec., J. G. Simmons, Box 1311, West Palm Beach, Fla.

***Nov. 13-16—Salem, Oregon**
LEAGUE OF OREGON CITIES—Annual Meeting (Marion Hotel). Exec. Sec., Herman Kehrli, P. O. Box 5177, Eugene, Ore.

***Nov. 13-16—Phoenix, Ariz.**
NATIONAL MUNICIPAL LEAGUE — Annual Meeting (Westward Ho Hotel). Exec. Dir., Alfred Willoughby, 47 East 68th St., New York 21, N. Y.

***Nov. 14-18—Stillwater, Okla.**
OKLAHOMA WATER, SEWAGE AND INDUSTRIAL WASTES ASSOC. — Annual Meeting (Okla. State University—Student Union). Sec.-Treas., H. M. Crane, 3400 N. Eastern, Okla. City, Okla.

***Nov. 14-19—London, England**
PUBLIC WORKS AND MUNICIPAL SERVICES CONGRESS AND EXHIBITION—Exhibition Organizers, The Municipal Agency Ltd., 70 Victoria Street, London S.W. 1, England.

***Nov. 15-18—Atlantic City, N. J.**
NEW JERSEY STATE LEAGUE OF MUNICIPALPALITIES. Annual Meeting (Chalfonte-Haddon Hall Hotel). Exec. Dir., Robert H. Fust, 603 Trenton Trust Bldg., Trenton, N. J.

***Nov. 16-18—Milwaukee, Wis.**
LEAGUE OF WISCONSIN MUNICIPALITIES—Annual Meeting (Schroeder Hotel). Exec. Dir., Ed Johnson, 30 E. Johnson St., Madison, Wis.

(Continued on page 204)

control

for algae and aquatic weeds

In small amounts, Triangle Brand Copper Sulfate controls algae growth and kills some of the more troublesome aquatic weeds. They disintegrate where they are, which prevents downstream infestation or clogged waterways.

In sewage pipes, Triangle Brand Copper Sulfate can be used in such low concentrations to control root and fungus growth that surface trees remain unaffected.

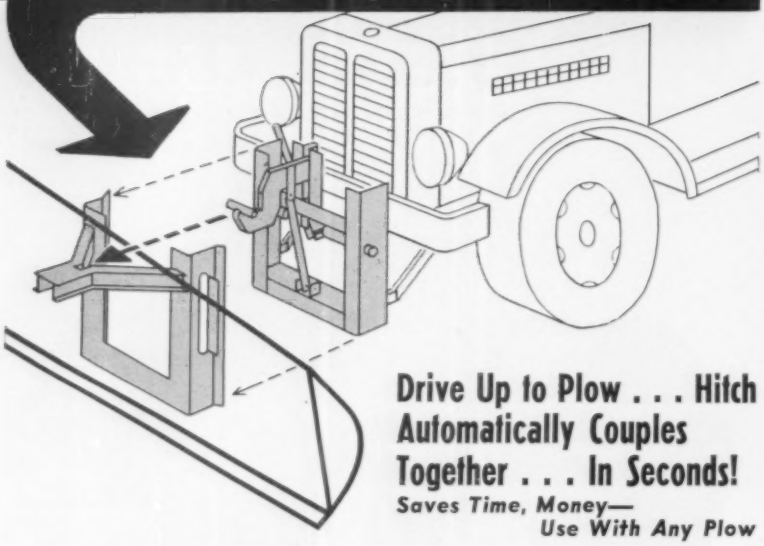
Two informational booklets, "The Use of Copper Sulfate in the Control of Microscopic Organisms," and "Copper Sulfate for Root and Fungus Control in Sanitary Sewers and Storm Drains," available on request.

Phelps Dodge Refining Corp.
300 PARK AVENUE, NEW YORK 22, N.Y.

NOW! Buy Any Make Snow Plow with Revolutionary Husting Hitch

DEMAND the Husting Hitch on
Your Favorite Make of Snow Plow

NEVER BEFORE!
A Quick-Snap Coupling for Snow Plows!



Drive Up to Plow . . . Hitch Automatically Couples Together . . . In Seconds!
Saves Time, Money—
Use With Any Plow

The Husting Hitch is Now Available on Every Make Snow Plow Listed

- BALKO
- FLINK
- GLEDHILL
- GOOD ROADS
- ROOT
- VALK
- WISCONSIN SPECIAL

The Husting Hitch

The revolutionary new HUSTING HITCH (patented) does what no other so-called fast coupling can do . . . offers true one man operation in just seconds without leaving the cab. Disengaging is just as easy.

The Spring Pin Action does the trick. The spring loaded pins snap into slots (see illustration) when the truck is driven up to the plow. Standard Hydraulic Controls then permit the driver to lift the plow and get under way without leaving the cab.

HUSTING HITCH equipped Snow Plows and Trucks are interchangeable. Once equipped, the truck can pick up any similarly equipped Plow, be it a Vee, Rigid One Way, Reversible or Trip Blade. ANY TRUCK CAN BE USED ON ANY PLOW.

The HUSTING HITCH has been offered for sale commercially and been in field use from New York to Minnesota since 1955. Each year sales have increased and our claims are based on the experience gained by well over 1,000 installations.

The Husting Flexible Link

A newly developed FLEXIBLE LINK (Pat. Pend.) gives HUSTING HITCH equipped plows additional freedom to follow the contour of difficult roadbed conditions found at some intersections and in alleys. It permits the snow plow to rotate about a central axis. Springs are used to hold the plow level in the carry position and prevent it from going out of control when in action next to a ditch.

The patented HUSTING HITCH (Standard or in combination with the FLEXIBLE LINK) can do a job for you. It is rugged, dependable and foolproof. Be sure to ask for it on your favorite make of Snow Plow. For further information write for descriptive literature and learn about this really new development in Snow Plow Couplings.

KASTEN MANUFACTURING CORPORATION

MARKET 9-2311 **ALLENTON, WISCONSIN**

Conventions—When and Where

(Continued from page 203)

***Nov. 16-17—Indianapolis, Ind.**

INDIANA SEWAGE AND INDUSTRIAL WASTES ASSOC.—Annual Meeting (Hotel Washington). Sec.-Treas., Victor G. Wagner, State Dept. of Health, 1330 W. Michigan St., Indianapolis, Ind.

***Nov. 16-23—Tel Aviv, Israel**

INTERNATIONAL UNION OF LOCAL AUTHORITIES—Annual Meeting. Sec. Gen., N. Arkema, 5 Paleisstraat, The Hague, Netherlands.

***Nov. 26-30—New York, N. Y.**

AMERICAN MUNICIPAL ASSOCIATION. Annual Meeting (Waldorf-Astoria Hotel). Exec. Dir., Patrick Healy, Jr., 1612 K Street, N.W. 6th Floor, Washington 6, D. C.

***June 4-9, 1961—Detroit, Mich.**

AMERICAN WATER WORKS ASSOCIATION. Annual Convention (Cobo Hall). Sec., Raymond J. Faust, 2 Park Avenue, New York 16, N. Y.

For a Better Mall

Plans for the downtown redevelopment of Lansing, Mich., include a modified mall on Washington Avenue, the main street. The program's two other major steps are providing increased parking facilities and improving traffic flow.

"Other mall projects, such as those in Grand Haven, Mich., and Toledo, Ohio, have met with less than enthusiastic endorsement because parking problems weren't solved and complete shutting off of the main street led to business stagnation rather than prosperity," states Herbert G. Daverman, of the J. & G. Daverman Co. & Kenneth G. Welch Associates, architects, engineers, planners, of Grand Rapids, Mich. Mr. Daverman foresees a 14% sales gain for Lansing merchants.

Narrowing eight-lane Washington Avenue to two lanes, planting shade trees, and construction of a covered walkway are main features of the redevelopment's third state. The two street lanes remaining open would be restricted to emergency and bus traffic.

The area would be cross-lighted from atop perimeter buildings. Basements would be extended under the sidewalks and utilities located under the street.

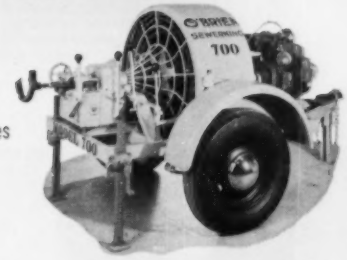
Financing is jointly by the city and merchants. The city is expected to recoup through increased tax revenues, while merchants and property owners will be repaid by increased business and demand for office space. ◄◄

Sewer Cleaning Problems?

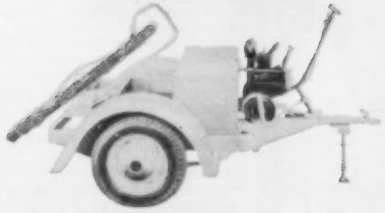
Solve them all with
POWERIZED
O'Brien
EQUIPMENT

O'Brien
Power
Rodder
1000

Bucket
Machine and
Dumper



Sewerking
Cable Machines



O'Brien
Power
Rod Drive

O'Brien makes a complete line of sewer cleaning equipment. Every unit is the exact answer to a specific cleaning requirement and reflects O'Brien's long experience and familiarity with the field. Economy, efficiency, and convenience of operation are built into every piece of equipment.

O'Brien Power Rodder:

matchless driving and pull-back power, unexcelled for bucket threading and general sewer maintenance. 1200 ft. capacity can be used with either $\frac{5}{16}$ or $\frac{3}{8}$-inch rod. Equipped with automatic safety throw-out, positive rod drive, and footage meter.

Bucket Machine and Dumper:

featuring exclusive O'Brien hopper. Bucket dumps into hopper; after repeated bucket travel, full hopper is dumped into truck. Use of hopper eliminates truck and traffic tie-up during cleaning operation which relieves truck for many hours of other duties while hopper is being re-filled. 9 hp., 16 hp., and 25 hp. models available.

Sewerking Cable Machines:

compact, powerful, economical cable rodder. Ideal for removing roots, grease, sludge and general sewer waste. Four Sewerking cable models available with capacities from 250 to 600-feet.

Rodding Equipment and Accessories:

O'Brien manufactures a complete line of powerized cleaning equipment accessories and universal replacement parts for all makes of sewer cleaning units.

Call or write for details or see O'Brien in action on your sewer problem. No obligation, of course!

Dept. AC1060 Nationwide sales and service
Demonstrations anywhere

O'Brien MANUFACTURING CORP.

5632 Northwest Highway, Chicago 46, Illinois • Phone: RO 3-7433

MUNICIPAL AND CIVIC PUBLICATIONS

Publications on these pages are available from the addresses indicated and are usually free unless a price is given.

River Basin Administration

RIVER BASIN ADMINISTRATION AND THE DELAWARE—*By Roscoe C. Martin, Guthrie S. Birkhead, Jesse Burkhead and Frank J. Munger. Syracuse University Press, Box 87, University Station, Syracuse 10, N. Y.* 1960. 390 *pp.* $5.

This book provides a background study for effective action in the field of water-resource management, particularly that embracing large areas and more than one state. The Delaware River Basin Administration was used as a case study. The economic, legal and political aspects were studied in the light of new and changing public needs. The study will aid in devising measures that would enable the administrative agency to meet the increasingly complex problems of such water-resources management.

The book examines the pros and cons in present water basin administration, points out the complexities and makes proposals for improving water resources administration. These proposals would vest the administrative agency with the authority and cooperation necessary to provide it with the means of accomplishing the task of administrating the water supply of a water basin for the benefit of the greatest number of people.

Those concerned with the development of the water resources of this nation may disagree with the author's recommendations but they will find a wealth of information in this analysis of our present practices in water basin management.

Assembling is easy, with Calmet! And the current gathering of the AWWA's Southwest Section is an excellent opportunity to get acquainted with Calmet's simple, common sense construction . . . the kind of "take-it-apart, put-it-together in minutes" construction that has kept meter maintenance men and municipal officials on friendly terms with Calmet for more than thirty years!

WORTHINGTON CALMET METER DIVISION

2301 SO. MAIN • FORT WORTH, TEXAS

Traffic Dictionary

DICTIONARY OF HIGHWAY TRAFFIC — *By J. Stannard Baker and William R. Stebbins, Jr. Published by The Traffic Institue, Northwestern University, Evanston, Ill.* 1960. 360 *pp.* $6.

When everybody in a new art and science begins calling things by the same names, it may be said to have jelled. So here we have a Dictionary of Highway Traffic. It may be presumed that the authors believe that street traffic is enmeshed in the title. Who are the authors?

Referring their names on the cover to the 1960 Yearbook of the Institute of Traffic Engineers, we find that J. Stannard Baker is with Northwestern University, Evanston, Ill. William Raybond Stebbins, Jr., is with the Illinois Division of Highways, Chicago.

Specalized vocabularies have emerged for highway engineers, vehicle manufacturers, regulatory agencies, legislators—all concerned with highway traffic. Developing separately, these vocabularies have produced confusion. *Dictionary of Highway Traffic* is a consolidation of several technical languages. For the particular, distinctions are drawn between such terms as "junction" and "intersection," "registration" and "licensing," and "supervision," "control" and "direction." It is extensively illustrated with over 80 line drawings and charts.

Air Pollution

CLEANER AIR FOR NORTH CAROLINA—*By Billy C. Blakeney and Marvin D. High. Library, Robert A. Taft Sanitary Engineering Center, Cincinnati 26, Ohio.* 1959. 62 *pp.*

A study of the factors affecting present and potential air pollution in North Carolina with a description of what can be done by state, cities and industries to correct the problem.

Zoning

ZONING PRIMER—*By Martin J. Rody and Herbert H. Smith. Chandler-Davis Publishing Co., P. O. Box 36, West Trenton, N. J.* 1960. 48 *pp.* $1 (*less in quantity*).

Zoning Primer is just that. It is designed as a basic text on the subject for the average citizen. It describes what zoning is, what it attempts to accomplish, some of the problems involved and some of the new trends in zoning which promise to improve its application. City officials will want to pass this booklet along to interested citizen groups. The wide use of this book by citizen groups will bring a deeper understanding of zoning and will help pave the way for improvement in existing zoning, or will help prepare the way for the enactment of new zoning legislation.

The book is not exhaustive in its treatment of zoning but it does give the basic principles and points out the service it can render a community.

Sewage Purification

COLLECTING AND TREATING COMMUNITY WASTES—*Based on a study by Walter V. Hohenstein. Bureau of Governmental Research, College of Business and Public Administration, University of Maryland, College Park, Md.* 1960. 26 *pp.*

This booklet was prepared as a guide to Maryland communities showing them the need for and advantages of adequately treated wastes. It gives some basic facts about sewage treatment and how to go about providing it, and describes methods of financing. Communities in all states will find it helpful.

Assessments

ASSESSMENT ADMINISTRATION—*International Association of Assessing Officers, 1313 East 60th Street, Chicago 37, Ill.* 1960. 285 *pp.* $5.

This is a compilation of the papers and discussions of the Association's Silver Anniversary Conference. It contains information on procedures, valuation, administration, the influence of various facilities on values and what is new in types of assistance and improvement in this field.

Water Resources

WATER RESOURCES OF A WESTERN NEW YORK REGION—*By Erich F. Bordne. Syracuse University Press, Box 87, University Station, Syracuse 10, N. Y.* 1960. 149 *pp.* $3.

The author undertook to study the use, supply and need for water in Western New York in an effort to help solve the long-standing water problem of that region. The object of the study was to find out the amounts and location of domestic, industrial, animal and vegetable water use in order to determine the relative position of each in the water use equation of the area.

The study will be of especial interest to those concerned with water supply in New York but those who have comparable climatic and geographic conditions will also find the work helpful.

Urbanized County Highways

COUNTY HIGHWAY STUDY. *County Planning Board, County of Bergen, Hackensack, N. J.* 1959. 50 *pp.* $2.

Bergen County, N. J., makes a painstaking study of its county roadway needs in today's highly urbanized conditions. The report is out-sized, attractively done, and carefully aimed at winning support for a program that appears badly needed.

Housing Incentives

THE ROLE OF LOCAL GOVERNMENTS IN ENCOURAGING HOUSING REHABILITATION AND CONVERSATION THROUGH ECONOMIC INCENTIVES—*By John H. Vanderzell. Bureau of Municipal Affairs, Department of Internal Affairs, Commonwealth of Pennsylvania, Harrisburg, Pa.* 1960. 43*pp.*

This booklet attempts to survey the field of housing rehabilitation as it affects national, state and local programs. It reviews what might be done to bring about more harmonious cooperation between local, state and national governments and private enterprise and the individuals concerned in housing rehabilitation. The study was not confined to Pennsylvania.

The most important point raised is how economic incentives can provide a sounder basis for housing rehabilitation.

(Continued on page 208)

Highest Quality Water Filtration in large volume with SPARKLER DIATOMITE FILTERS!

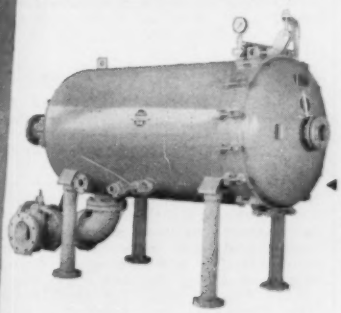
ALOYSIUS C. KRACKLAUER
Originator of the
Large Volume Diatomite Filter

Diatomite filtration of water in large volume is a comparatively recent development by Sparkler engineers. For many years the distinct superiority of diatomite filters in producing filtered water of highest clarity, with reduced bacteria count and with absolute uniform quality has been recognized by engineers in the chemical and other industrial fields, but old style diatomite filters were limited in volume.

Now the new large volume diatomite filters engineered by Sparkler have been tested in hundreds of successful installations in many industries and for municipal water supply, and have almost completely replaced sand filters for swimming pool filtration in schools, clubs, and municipal pools because of the greatly reduced chemical treatment necessary, to produce safe water.

This new phase of water filtration is worthy of careful investigation and study by all consulting engineers who are engaged in large volume water filtration.

MODEL RJ



A closed tank, pressure filter, with self cleaning features. The spent diatomite cake is peeled off the plates with the exclusive Sparkler Hydro-Scraper knife edge pressure spray and is washed out of the tank through the sloping bottom drain. The complete cleaning operation including precoating and recirculating for clarity ready for resuming operation is less than 30 minutes; a completely new uncontaminated filter media is thus provided. Filter element and spray tubes have no metal to metal contact with tank, thus providing electrolytic protection. Fully automatic electronic operation can be furnished.

Capacities are available in a single unit for 1,500,000 gal. per 24 hr. operation.

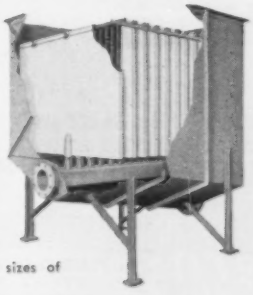
Approximately ¼ the floor space is required by this filter as compared with a sand filter and the installed cost is ⅓ to ⅔ that of sand.

MODEL HCV

A vacuum type filter that operates with an open tank and with full visibility of filtering process at all times. Plates are plugged into a self sealing outlet manifold at the bottom of the tank. Cake is removed by flushing off with hose. Spent cake flows out the self draining bottom through a T on the inlet supply pipe. Filter elements have no metal to metal contact with tank, thus eliminating electrolytic action.

This filter is available in capacities up to 900,000 gal. per 24 hr. operation.

Both filters have synthetic cloth covered plates that are removable without bolts or fastenings.



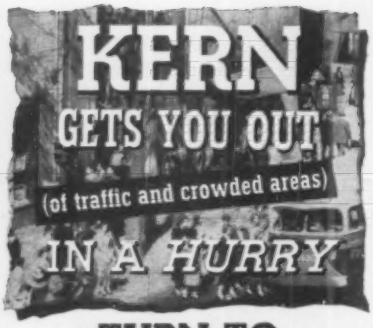
Complete range of filters for all sizes of swimming pools also available.

Write for bulletins and engineering data on these filters.

SPARKLER FILTERS

SPARKLER MANUFACTURING CO.
CONROE, TEXAS, U. S. A.
Sparkler International Ltd., Manufacturing Plants at Leliegracht 9, Amsterdam, Holland; Toronto, Ontario, Canada; Italy and Australia

FILTRATION ENGINEERING & MANUFACTURING EXCLUSIVELY FOR OVER 30 YEARS



TURN TO
KERN INSTRUMENTS
for increased working speed, simplicity and economy of operation, higher degree of accuracy.

45 SEC. SET-UP TIME with KERN GKI LEVEL and KERN (Ball & Socket) TRIPOD

- Unique new design—no leveling screws.
- Compact, functional, highly portable.
- Fast, effortless operation.
- Fine tilt screw; coincidence spirit level.
- Mean accuracy as high as 13/1000 ft. per mile.

$251.50 GKI LEVEL
Including Fixed Leg Tripod.

★

REVOLUTIONARY NEW TRIPOD
Levels instrument with remarkable speed. Assures exceptional stability with ball-and-socket head supporting instrument coupling.

★

Write for Brochure GK 479
PROMPT, RELIABLE SERVICE
FACTORY TRAINED PERSONNEL

Kern SWISS
The FINEST in SURVEYING EQUIPMENT
KERN INSTRUMENTS INC.
120 Grand St., White Plains, N.Y.

(Continued from page 207)

Election Costs

THE COSTS OF DEMOCRACY—*By Alexander Heard. The University of North Carolina Press, Chapel Hill, N. C.* 1960. 493 *pp.* $6.

Since our whole process of local government is founded on free elections, this scholarly work probing the wide field of financing these elections as they effect the freedom of government is an important one to government officials in all levels of government.

The book is the result of years of research. Literally thousands of individuals contributed information to make it an authoritative account of this subject. It discusses the effect of money on the outcome of elections; its sources and motivations; methods of fund raising and their effect on party and candidate. It describes the ways the money is used and what is accomplished, examines the proposals for altering the present system, and outlines measures that might ensure a more equitable choice between candidates and political parties. The book is impressively documented.

Federal Government

UNITED STATES GOVERNMENT ORGANIZATION MANUAL—*Superintendent of Documents, Government Printing Office, Washington 25, D. C.* 1960. 817 *pp.* $1.50.

The General Services Administration has published the 1960-61 edition of its manual outlining the legislative authority, purpose and function of the legislative, judicial and executive branches of the government. One section gives a brief history of the agencies whose functions have been abolished or transferred since March 4, 1953.

Cities will find this Manual invaluable in its dealings with the federal government.

Citizen Commissions

CITIZENS IN ACTION—*The Citizens Budget Commission Story—Citizens Budget Commission, Inc., 51 East 42nd St., New York 17, N. Y.* 1960. 128 *pp.* $1.25.

This account of the history of the New York City Budget Commission from 1932 to the present should be a source of information and encouragement to similar bodies and local governments wherever representative government is found. It was born during the depression years out of the dire necessity for fiscal reform in New York City. Made up of a group of dedicated men, the Budget Commission proceeded to explore the field of finance and management of New York City and to recommend constructive reform.

The problems confronted and the solutions worked out by the commission through almost thirty years should be instructive and inspiring to those working out similar urban problems.

Reapportionment in Florida

REPRESENTATIVE GOVERNMENT AND REAPPORTIONMENT, A CASE STUDY OF FLORIDA—*By William C. Havard and Loren P. Beth. Public Administration Clearing Service, University of Florida, Gainesville, Fla.* 1960. 77 *pp.* $1.

This searching study of a knotty problem in Florida deals with the various factors which have brought about and tend to perpetuate a system which does not give proportionate representation. Its discussion of solutions is not very hopeful and indicates that the states' urban areas will have to exert much effort and time before achieving adequate solutions.

HOTTEST STREET PATCHER IN TOWN AFTER TOWN

Used daily by more than 200 cities, counties, and state highway depts.

ELLIS "HOT ROLL" Liberty, Mo.

BARTLETT
Compound Lever
W E COMBINATION TREE TRIMMER AND SAW OCTAGON POLE

Double leverage action of pulley gives extra power. Head sections 30" overall. Easily converted from pole pruner to pole saw for large limbs, and extra lengths can be added to make desired length — Capacity of pruner 1¼" with dropforged, sidecutting blade. Saw will handle larger branches. Has 16" curved blade with peg teeth. Other styles available.
The W E Combination with 2-6 ft. sections is recommended, since it can be used as an 8½ ft. pole, using one section or a 14½ ft. pole by using 2 sections.
Price Complete $37.50 Delivered in U.S.A.
Also available with 2-8 Ft. Sections $39.50

Use Bartlett Saws

No. 114B—26 inch Special Utility Saw combines for the first time: *Quick* cutting, *Smooth* cutting, *Easy* operation. Price $9.75 delivered in U.S.A.

Write now for details and complete catalog.
BARTLETT MFG. COMPANY
3035 E. GRAND BOULEVARD DETROIT 2, MICH.

Faster LOCATING!
LOWER SERVICE COSTS
with the improved AQUA VALVE BOX LOCATOR!

$32.50 F.O.B. Cin., Ohio

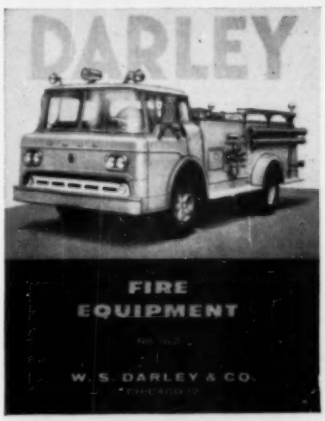
STOCK this useful tool for every service CAR and CALL •
Speed • Locating • Keep Customers Happy

- NO WIRES, BATTERIES or SWITCHES—simple, powerful magnetic action, factory adjusted to YOUR geographical location assures unfailing results!
- NO NEEDLE SPINNING—exclusive electric braking action saves you time!
- NO STOOPING—easy top-view reading!
- RUGGED—compact, accurate, convenient!
- GUARANTEED—to function regardless of weather, surface or ground cover!
- NATION'S MOST WIDELY USED LOCATOR!
- 15-DAY FREE TRIAL—No money! No obligation! You be the judge!

ORDER NOW-Wire or Call Klrby 1-4200 collect

AQUA SURVEY & INSTRUMENT CO.
7041A Vine St., Cincinnati 16, Ohio

NEW CATALOG!



WRITE TODAY FOR 128-PAGE FIRE EQUIPMENT CATALOG
SPECIFY YOUR TITLE ON YOUR REQUEST

W. S. DARLEY & CO.
CHICAGO 12

Municipal Data

THE MUNICIPAL YEAR BOOK—*Orin F. Nolting and David S. Arnold, Editors. International City Managers' Association, 1313 East 60th Street, Chicago 37, Ill.* 1960. 590 *pp.* $10.

This year's edition of a familiar and highly respected source book has been expanded to include information on: parking lots and meters in over 1000 cities with over 10,000 population; housing standards in 229 cities; data on cities of over 5000 population. It has the usual and authoritative supply of information on local governments, covers a wide range of data with 21 major tables. It reviews new developments in the areas of metropolitan cooperation, municipal law, urban counties, economic classification of cities, state municipal leagues; and contains articles discussing police, fire personnel, public works, public health, education by those with an intimate knowledge of the subject.

Council-Managers In Europe

DIRECTORY OF COUNCIL-MANAGER MUNICIPALITIES IN EUROPE—*International City Managers' Association, 1313 East 60th Street, Chicago 37, Ill.* 1960. 25 *pp.* $1.

A list of 1732 municipalities in Finland, Ireland, Norway, Sweden and Germany that have a chief administrator similar to our council manager. This would indicate a rapid increase. In 1958 only 325 municipalities were so listed.

The W. C. in History

CLEAN AND DECENT; THE FASCINATING HISTORY OF THE BATHROOM AND THE W. C.—*By Lawrence Wright. The Viking Press, Inc., 625 Madison Avenue, New York 22, N. Y.* 1960. 282 *pp.* $4.95.

Sanitary engineers and officials in charge of municipal water and sewer systems will enjoy this book. It is a highly illuminating, sometimes humorous, sometimes grim history of personal hygiene down through the ages. An illustrated account of man's efforts to be "Clean and Decent" is a reminder that our level of cleanliness still has a long way to go to attain perfection.

ADMINISTRATION AND GOVERNMENT

MICHIGAN—The Michigan City Manager in Council Proceedings. Michigan Municipal League, 205 South State St., Ann Arbor, Mich. 1960. 30pp. $2.

PENNSYLVANIA—Acts of the 1959 Pennsylvania General Assembly Affecting Local Governments. Genevieve Blatt, Secretary, Department of Internal Affairs, Commonwealth of Pennsylvania, Harrisburg, Pa. 1960. 89 pp.

ANNUAL REPORTS WORTH READING

BERKS COUNTY, PA.—Tomorrow Begins Today, Annual Report of Berks County Planning Commission. Office of the Planning Commission, County of Berks, Court House, Reading, Pa. 1960. 12 pp.

COHASSET, MASS.—Annual Report 1959. Office of the Town Clerk, Town Hall, Town of Cohasset, Mass. 1960. 140 pp.

EAST LANSING, MICH.—Annual Progress Report 1959. Office of the City Clerk, City Hall, 400 Abbott Rd., East Lansing, Mich. 1960. 17 pp.

(Continued on page 210)

NCG® wherever emergency strikes...

*Handy** Resuscitators automatically breathe when the breath of life is gone.

The Handy Resuscitator does *three* important things:

1. It automatically inhales and exhales, adjusting automatically the depth of respiration to the patient's lung capacity, for an adult, child or even *infant.*
2. It can be quickly switched to "Inhalation" to supply oxygen to be absorbed by the spontaneous respiration of the patient.
3. It provides sufficient suction as an Aspirator to remove obstructing material from the throat, such as water, mucus, etc.

GIFT FOR LIFE
Various organizations have presented Handy Resuscitators to local Fire and Police Departments and Civilian Defense Groups. Why not ROTARY, ELKS, LIONS, MOOSE, KIWANIS or Veteran Organizations in your area?

Get complete information today. Phone or write now.

NATIONAL CYLINDER GAS
DIVISION OF CHEMETRON CORPORATION
840 North Michigan Ave., Dept. M-10K
Chicago 11, Illinois

CHEMETRON

© 1960, CHEMETRON CORPORATION *Trademark

YOU SHOULD SEE THIS BOOK

before ordering

BRONZE PLAQUES

●MEMORIALS ●HONOR ROLLS

●TABLETS ●TESTIMONIALS

Shows how to get the best plaques — at lowest prices.

Also Plaques of ALUMINUM and NICKEL SILVER.

Prompt Estimates—Sketches Furnished

Write for Free Catalog A-118

For Medals and Trophies ask for Catalog B-118

INTERNATIONAL BRONZE TABLET Co., Inc.

150 West 22nd St., New York 11, N. Y.

Tel: WAtkins 4-2323

(Continued from page 109)

GARDEN CITY, N. Y.—Annual Report—1959. Office of the Village Clerk, Village Hall, Garden City, N. Y. 1960. 41 pp.

LIVINGSTON, N. J.—Third Annual Report. Township of Livingston, Township Hall, Livingston, N. J. 1960. 26 pp.

NEW YORK, N. Y.—Home, Home at Last. 1959 Report of the New York City Housing Authority. New York City Housing Authority, 299 Broadway, New York 7, N. Y. 1960. 299 pp.

ST. LOUIS, MO.—A Report to St. Louis by Its Legislative Body. Board of Aldermen, City Hall, St. Louis, Mo. 1960. 48 pp.

SEATTLE, WASH.—Seattle City Light. Annual Report for 1959. City of Seattle, Department of Lighting, Municipal Building, Seattle, Wash. 1960. 33 pp.

UVALDE, TEX.—Progress Report. Office of the City Manager, City Hall, Uvalde, Tex. 1960. 20 pp. This is a pictorial tabloid newspaper-style report.

WEST COVINA, CALIF.—West Covina Report. Office of the City Clerk, City Hall, West Covina, Calif. 1960. 26 pp.

CIVIL DEFENSE

GENERAL—Ten for Survival (Survive Nuclear Attack). Published by the Office of Civil and Defense Mobilization. Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. 1960. 23 pp.

FINANCE & TAXATION

TENNESSEE—Revenues and Expenditures of 139 Tennessee Towns and Cities 1958. Technical Bulletin No. 38. Municipal Technical Advisory Service, Division of University Extension, University of Tennessee, Knoxville, Tenn. 1960. 64 pp.

VIRGINIA—Tax Rates in Virginia Towns. Report No. 425. League of Virginia Municipalities, 905 Travelers Building, Richmond 19, Va. 1960. 33 pp. $1.

MISCELLANEOUS

PHILADELPHIA, PA.—Philadelphia Showcase, a Department of Commerce Report. Division of Public Information, Office of the City Representative, City Hall, Philadelphia, Pa. 1960. 29 pp.

PARKS & PLAYGROUNDS

SOUTH BEND, IND.—A Long Range Plan for Recreation Areas. City Planning Commission, City Hall, South Bend, Ind. 1960. 55 pp.

PLANNING, ZONING, HOUSING

GENERAL—Trends Toward Open Occupancy in Low-Rent Housing Programs of the Public Housing Administration. 29. Housing and Home Finance Agency, Public Housing Administration, Intergroup Relations Branch, Washington 25, D. C. 1960. 68 pp.

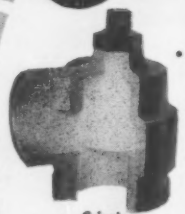
CLEVELAND, OHIO—Suburban Business Centers. Regional Planning Commission, 415 Arcade, Cleveland 14, Ohio. 1960. 56 pp. This and supplement: $5.

Crispin

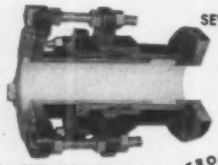
AIR VALVES

...for maximum safety and efficiency in pipeline operations

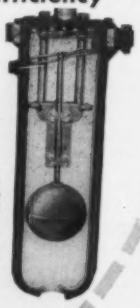
Crispin Air Valves have these *basic* advantages — simplified construction, easy accessibility, maximum durability, minimum maintenance and thoroughly efficient operation.



Crispin DEEP WELL AIR VALVES adjustable screw top attached to Crispin Air & Vacuum Valves controls air flow to eliminate damaging float flutter.



Crispin SEWER AIR VALVES automatic, not manual, control of air in equipment used for the treatment and disposal of sewage.



Crispin SLIP JOINTS safe, fast way to remove and replace fixtures when repairing lines.

AIR CONTROL VALVES FOR OVER 45 YEARS

multiplex

MANUFACTURING COMPANY

BERWICK, PENNSYLVANIA

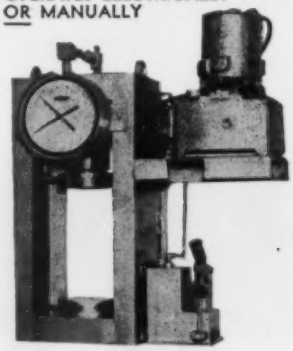
Dept. E

Write, wire or phone for the facts on the complete line of Crispin Air Valves that provide safety and efficiency in your line operations.

FORNEY

JOB-SITE CONCRETE TESTER FT 20-E

- CONFORMS TO ASTM STANDARDS
- OPERATES ELECTRICALLY OR MANUALLY



- PERMANENTLY MOUNTED ELECTRIC PUMP
- 250,000 LB. LOAD RATING FOR CYLINDERS, CORES, BLOCKS, BEAMS, CUBES, BRICK AND DRAIN TILES

FORNEY'S, INC.

TESTER DIVISION • BOX 310

NEW CASTLE, PA., U. S. A.

CLIFTON, N. J.—Zoning for High Rise Apartments in Clifton, N. J. Passaic Valley Citizens Planning Assoc., 312 Clifton Ave., Clifton, N. J. 1960. 52 pp. $2.

GREENSBORO, N. C.—Community Facilities Plan. Department of Planning, Municipal Building, Greensboro, N. C. 1960. 35 pp. $1.

PROVIDENCE, R. I.—Downtown Providence Master Plan. Providence City Plan Commission, 25 Dorrance St., Providence 3, R. I. 1960. 70 pp.

RICHMOND, VA.—Open Spaces in the Richmond Region 1960-80. Richmond Regional Planning and Economic Development Commission, 219 Governor St., Richmond 19, Va. 1960. 21 pp. $1.

REPRESENTATIVE MUNICIPAL BOND ISSUES

From August 3rd to September 1st, 1960

Date of Issue	Locality	Amount in $1000	Purpose	Term Yrs. to Maturity	Rate of Int.	Yield %
8/ 3/60	Cadillac, Mich.	1,170	Water Revenue	22½	4.22	4.18
8/ 4/60	Indianapolis, Ind., Flood Control District	1,610	Flood Control	11½	....	3.05
8/ 5/60	Waterloo, Ia.	1,000	Sewer, Bridge	8	3.00	2.93
8/ 9/60	Gadsden, Ala.	1,000	General Obligation	22½	4.16	4.15
8/ 9 60	Worcester, Mass.	2,200	Airport, Flood, School	9	2.90	2.80
8/10/60	Terrebonne Par., La.	1,300	Public Improvement	11½	....	3.85
8/10/60	Wall Twp., N. J.	1,425	Water	8½	3.70	3.67
8/11/60	Lynn, Mass.	1,000	School, Public Parking	9½	3.00	2.98
8/11/60	Russellville, Ky.	2,450	Industrial Bldg. Rev.	13	4.50	4.48
8/16/60	Henderson, Ky.	1,500	Water and Sewer Rev.	25	....	3.87
8/16/60	Niagara Co., N. Y., Water District	4,500	Water	16½	3.00	2.92
8/16/60	Waltham, Mass.	3,050	School, Sewer, Water Street	8½	2.90	2.79
8/17/60	Fresno, Calif.	1,060	Street	30	4.45	4.45
8/20/60	Atlanta, Ga.	12,725	Sewer, Traffic, Parks	16½	3.25	3.15
8/23/60	Oyster Bay, N. Y.	2,620	Gen. Obl. Pub. Imp't	6	3.00	2.92
8/24/60	Weymouth, Mass.	2,655	School, Building, Sewer, Street	10	3.10	3.00
8/25/60	Monroe Co., N.Y. Gates-Chili-Ogden Sewer Dist.	7,600	Sewer	15	3.00	2.95
8/30/60	Cleveland Heights, Ohio	1,000	Sewer	9	3.00	2.81
8/31/60	Bridgewater Twp., N. J.	1,200	Sewer	6	2.80	2.79
9/ 1/60	Rochester, N. Y.	9,157	School, Public Imp.	7½	2.60	2.59

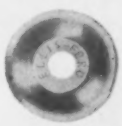
Compiled from THE WEEKLY BOND BUYER

SAVE LABOR
with
ROADMASTER
Hot Asphalt Plant
It's Completely Automatic

The only self-contained asphalt plant, with fully automatic aggregate batching and asphalt metering, specifically designed for municipalities. Available as stationary or mobile unit. Costs no more than manually operated plants. SAVES THE LABOR OF AT LEAST ONE MAN. Rotary dryer with forced draft. Twin-shaft pugmill with enclosed oil-bath gear box. Enclosed bucket elevator and reciprocating feeder. 400 gallon asphalt tank. Cyclone-type dust collector. Send for 8 page, illustrated brochure.

WYLIE MANUFACTURING CO., INC.
P. O. BOX 7086 • OKLAHOMA CITY 12, OKLA.

Ellis Heavy Duty Pipe Cutters For Pipe Up To 16" Dia.



With Long Lasting Cutter Wheels

Designed for water works men who appreciate the rugged construction of drop-forged frame and links; and a tool that assures no pipe breakage, no re-cutting and no spoilage.

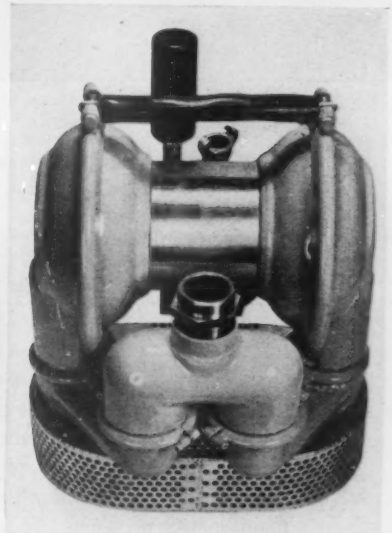
THREE SIZES
No. 01 for 4" to 8" Pipe
No. 1 for 4" to 12" Pipe
No. 1B for 4" to 16" Pipe

write today for free literature

ELLIS & FORD MFG. CO.
1100 COOLIDGE RD.
BIRMINGHAM, MICH.

THE LATEST IN DIAPHRAGM PUMPS!
Another new
LAYTON
PNEUMATIC PUMP

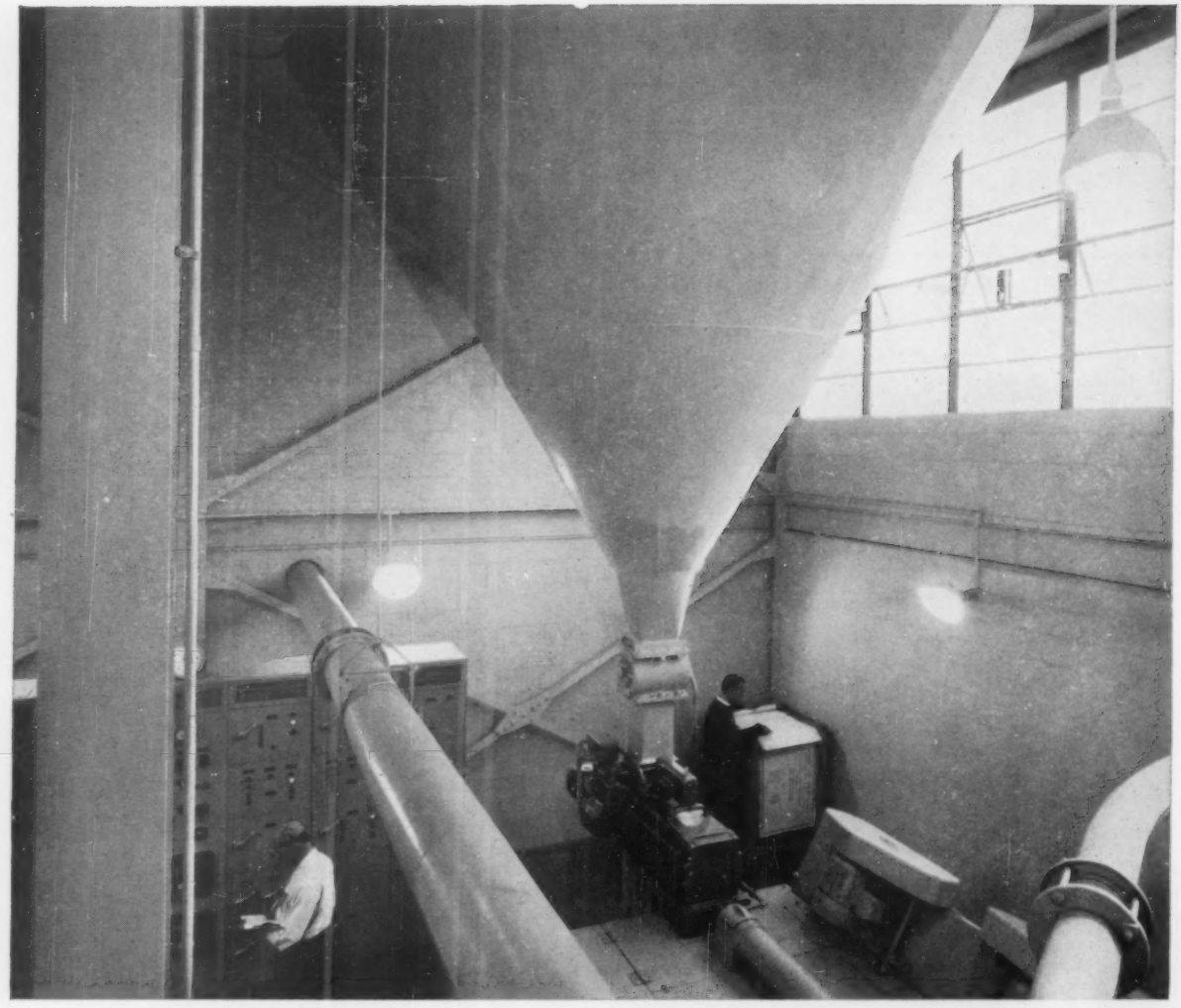
- Powered by compressed air for more effective, more efficient pumping of liquids containing high percentage of solids or just plain water. Requires just 20 c.f.m. of air at 100 p.s.i. Discharges 6300 g.p.h. at 10 ft. discharge head—2160 g.p.h. at 100 ft.
- Layton pumps are one man portable . . . self-priming . . . quiet in operation . . . safe . . . fireproof . . . odorless. Submerge in liquid or use suction hose.
- The handiest pumps for dewatering trenches, sumps, manholes, tank cleanout . . . sludge . . . abrasive laden liquids.



Model DA-4; Wt. 79 lbs.; Ht. 21"; Len. 16¼"; Width 16¼"

Distributors in All Principal Cities — Write for Catalog or Further Details.

LAYTON CO., INC.
P.O. BOX 87B, CUDAHY, WISC. Phone: HUMBOLDT 1-4400



WHEN THE BEST IS REQUIRED PARLON IS FIRST CHOICE

Here's a photograph worth a million words. It shows the Chemical Feed Room at the Middlesex County Sewerage plant at Sayreville, N.J. Throughout this plant a protective coating must meet the challenge of chemical fumes. That's why Socony Paint Products Company's Sovaklor Chemical Resistant Coatings based on Parlon® chlorinated rubber were selected for walls, beams, hoppers, pipes and other equipment. Perhaps Parlon's long life, resistance to corrosion, and ability to cover almost any type of surface material can solve your maintenance problems. Your supplier of quality paint can tell you more about Parlon, or write direct to Hercules.

Cellulose Products Department

HERCULES POWDER COMPANY

INCORPORATED

910 Market Street, Wilmington 99, Delaware

CR 59-9

Low-Cost Insect Control

An inexpensive spraying method for killing mosquitos and other harmful insects is now in use in several cities. It utilizes a portable sprayer mounted on a Cushman 780 Truckster.

The spraying equipment weighs about 250 pounds empty, 650 pounds when the spray tank is filled. It's mounted on skids and simply slid into the steel pick-up box of the Truckster. This spraying method is primarily for catch basin spraying and one man can easily operate both Truckster and sprayer.

This combination can also be used for spray cleaning with water or disinfectants; water painting of fences and buildings; weed and brush control spraying, and as emergency fire-fighting equipment.

When sprayer has been removed, the Truckster can be used for many light hauling and maintenance applications. In such use, it will handle loads weighing up to 800 pounds.

For full details, write CUSHMAN MOTOR WORKS, 946 N. 21ST ST., LINCOLN, NEBR.

Used for catch-basin spraying, this combination of a portable John Bean sprayer on a Cushman 780 Truckster is saving money for several cities.

Wedge-Lock Clay Pipe

Wide acceptance of Wedge-Lock Clay Pipe with the factory-made double-ball, compression joint, is confirmed in a 12-page, "case history" booklet, released by WEDGE-LOCK CLAY PIPE MANUFACTURERS.

In addition to describing and illustrating Wedge-Lock Clay Pipe and Fittings, the booklet details typical installations and applications in industry, public institutions, residential developments, and public sanitary sewerage projects; and many architects, engineers, builders and contractors who have specified and installed Wedge-Lock Clay Pipe.

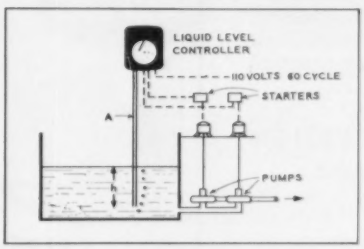
Copies are available on request, from any of these Wedge Lock Clay pipe manufacturers: Cannelton Sewer Pipe Company, Cannelton, Ind.; The Clay City Pipe Company, Uhrichsville, Ohio; Graff-Kittanning Clay Products, Worthington, Pa.; Larson Clay Pipe Company, Detroit, Mich.; Lehigh Sewer Pipe & Tile Company, Fort Dodge, Ia.; The Logan Clay Products Company, Logan, Ohio; The Owensboro Sewer Pipe Company, Owensboro, Ky.; Pomona Terra-Cotta Company, Greensboro, N. C.; The Robinson Clay Product Company, Akron, Ohio; Superior Clay Corporation, Uhrichsville, Ohio.

Level Control Unit

The Foxboro Company of Foxboro, Mass., is now offering a "packaged" level control unit for use in water and sewage treatment plants.

The new controller consists of a compressor, a purge rotameter, diaphragm pressure element, damping restrictor, Rotax contacts, plug-in relays and a pump sequencing relay. It can be furnished as an indicator, a recorder or, where long distance transmission is required, as a telemeter. All components are housed in asingle case to which a buttle tube is connected.

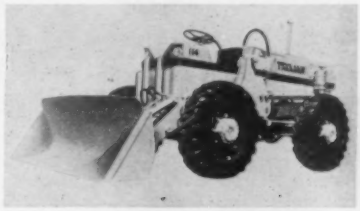
Features of the instrument include ±0.5 percent accuracy; ranges from 0-10 inches of water up to 0-10 feet of water; no cleaning or servicing problems; simple to install, even in locations such as reservoirs and underground tanks.



Complete information can be obtained from the FOXBORO COMPANY, FOXBORO, MASS.

Introduces New Trojan

A 13,000-pound tractor shovel new to the Trojan line has a 6,500-pound lifting capacity and bucket sizes from 1 to 1⅔ cubic yards. Features such as power shift transmission, planetary axles, power steering and vacuum boosted hydraulic power brakes enable operators of the Model 114 to reach maximum production while attachments give unlimited job flexibility.



Over 25 mph road speed permits the Trojan Model 114 to move quickly and easily from one job to another.

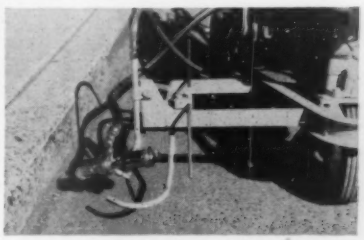
Safety-curve lift arms protect the operator; extra-wide tread and longer wheelbase provide stability under difficult conditions.

A torque proportioning differential axle permits maximum utilization of power. Both gasoline and diesel operation is available through these engine options.

Overall length of the Model 114 is 17'4"; width (over axle hubs), 7'6". Forty degree bucket tip back at carry position is provided.

Write TROJAN DIV., YALE & TOWNE MFG. CO., BATAVIA, N. Y.

Traffic Line Painting



WALD INDUSTRIES, HUNTINGDON, PA., has announced a new swivel gun mount for its 8T and Junior Striping Machines.

Designed to be swiveled to any painting angle, the gun mount is instantly adaptable for painting pavement, vertical or angled curb faces and curb tops.

Before this, the operator had to move the entire spraying arm and clamp it into position.

Fast, Low-Cost Ice Control

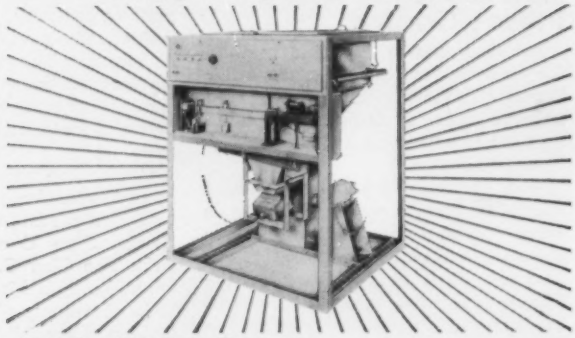
You control ice and snow **Faster** and **Cheaper** with straight de-icing salts. The TARCO "Scotchman" is **the only spreader especially designed** for the correct application of these materials.

This "Jeep" mounted "Scotchman" uses the **1 cu. yd. Watchman Hopper.** Here's enough material to cover more than **5 miles of pavement, 30 feet wide.** One man operation. Use the **job-proven** "Scotchman" on any of your trucks: dump body, pick up, stake body or "Jeep".

Watchman Hopper, all gravity feed, is available in 3 cu. yd. capacity for dump body use. Remember: when it comes to snow and ice control, **Nothing Saves Like a "Scotchman".**

TARRANT MFG. CO.
23 Jumel Pl., Saratoga Springs, N. Y.

accurate, dependable, continuous weigh feeding of dry chemicals in water and sewage treatment with . . .



SYNTRON

Diminishing Batch

WEIGH FEEDER MACHINES

SYNTRON Weigh Feeder Machines enable you to set up pre-calculated chemical treatment in which the additive is accurately weighed and then fed on a pre-selected pounds per hour basis—from 3 pounds to 300 pounds per hour.

With SYNTRON Weigh Feeders you are assured an accurate amount of material has been injected into the process at a smooth, even rate over a given period.

Fill your bulk weigh feeding needs with SYNTRON Diminishing Batch Weigh Feeder Machines.

SYNTRON COMPANY
Quality Equipment Since 1921
430 Lexington Ave. Homer City, Penna.

Wiley **BOOKS**

METHODS OF REGIONAL ANALYSIS

An Introduction to Regional Science

By Walter Isard, *University of Pennsylvania. In association with* D. F. Bramhall, G. A. P. Carrothers, J. H. Cumberland, L. N. Moses, D. O. Price, *and* E. W. Schooler. This material is *basic* to case studies of special areas. The techniques have been proven to be valid, and are set forth in clear-cut form. Advantages and limitations of these methods are given, to provide bases for judging their applicability to specific regional situations. Major elements are presented in depths sufficient to permit sound appraisal of almost any analytical method. *1960. 784 pages. $9.50*

PRINCIPLES OF PAVEMENT DESIGN

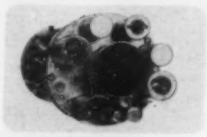
By E. J. Yoder, *Purdue University.*
1959. 569 pages. $13.25

Send now for on-approval copies.

JOHN WILEY & SONS, Inc.
440 Park Avenue South, New York 16, N. Y.

TELEVISION FOR PIPE INSPECTION

MONITOR



CAMERA

- **ELIMINATE GUESS WORK**
  Pin point trouble spots with our completely automatic Video System.
- **IMMEDIACY**
  Positive visual observation and repair automatically upon location.
- **PERMENANT RECORDS**
  Technician in our mobile viewing room makes permanent records of conditions.

Inspectoline Inc.
CLEVELAND, OHIO

SALES **SERVICE**
CLOSED CIRCUIT TELEVISION SYSTEMS
CALL COLLECT
RA 1-7555
WRITE
9501 Euclid Ave.
Cleveland 6, Ohio

Portable Utility Repair Kit

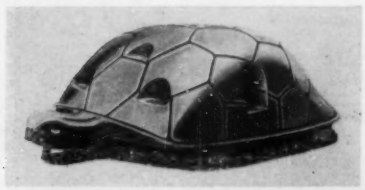
Leaking bell and spigot joints, flanges, saddles, and caulked sleeves, as well as cracked valve bonnets and leaking threads can be quickly, economically and permanently repaired by this epoxy resin repair kit, which the manufacturer, Dresser Mfg. Division, Bradford, Pa., calls the "Util-Seal" Kit.

The kit is especially recommended for minor repairs in hard-to-get at places. It is packaged so as to avoid expensive waste in the field, and contains individual portions of resin, activator and fibrous reinforcer, as well as a collector ring and pressure relief vents for use during the "setting-up" period. The packages are sized to eliminate guesswork in combining correct proportions.

Util-Seal material can be mixed in the field in the resin can supplied in the package, stirred, and applied with a wooden paddle, also provided in the package. The entire kit is small enough to be carried as spare gear in all service trucks.

For complete information, write Dresser Mfg. Division, Bradford, Pa.

Tot-Lot Turtle



Here's a playground item that youngsters won't be able to resist. It is formed in the shape of a jumbo turtle approximately two feet high, with indented "steps" on three sides, and youngsters can climb over and around, or sit on it.

Strong, lightweight, and portable, the Turtle Climber is molded of rugged fiberglas, further reinforced with structural steel tube. Its bright green and orange coloring will not chip, peel or fade—since the fiberglas itself is color-impregnated throughout.

For further information and free literature, write William Garrett, Director of Sales, Game-time, Inc., Litchfield, Mich.

Once over lightly!

that's all it takes with a full chain driven

Locke POWER MOWER

2 Models—Single & Triplex
4 Basic Sizes—25", 30", 70" & 75"
Plain or Reverse

DRIVES: Guarded, heat treated and hardened steel sprocket roller chain.
BLADES: Heat treated and hardened alloy steel, motor driven spiral type reels, mounted on ball bearings.

Locke's exclusive "floating" action, "finger-tip" control and perfectly balanced, chain driven synchronized cutters assure

- Streakless cuts
- No rolled down or uncut grass

The entire mower travels on the cut grass and overhangs raised borders by ⅓, saving up to 50% hand trimming.

8 Reasons why Lockes are your best buy:

1. No belts to slip.
2. Overhangs raised borders by ⅓.
3. Turn at any angle, without raising units.
4. Gauge shoes prevent scalping; require less power to propel; less effort to manipulate.
5. Full floating cutters follow contour of the ground.
6. Side cutters raise vertically for storing and transportation.
7. B&S Motors are guaranteed and serviced by B&S, Locke and its dealers.
8. Riding sulkies attach in seconds.

Save time, money and energy! See your Locke Service Dealer now for a demonstration, or write.

Locke POWER LAWN MOWERS
1315 Connecticut Ave., Bridgeport 1, Conn.
A product of The Locke Steel Chain Co.

Send for these New Locke data sheets

The Locke Steel Chain Co.
1315 Connecticut Ave., Bridgeport 1, Conn.
Locke Mower Div.
Gentlemen:
☐ We want a demonstration. Have your Dealer phone.
☐ Send your latest literature.
NAME _____
COMPANY _____
ADDRESS _____
CITY _____ ZONE ____ STATE _____

Now is the time to take your grass cutting costs seriously. ASK YOUR LOCKE Service Dealer for the facts, or write.

NO MORE DARK STREETS!

Save UP TO **$50,000** PER YEAR WITH

UNBREAKABLE Fiberglass STREET LIGHT GLOBES

Tested and Approved by Recognized Standards Committees

- Shatterproof
- Lightweight
- Weatherproof

Over 10,000 in use by leading Utilities and Municipalities

Now...an unbreakable fiberglass street light globe that defies even the most vicious vandalism. These new Plastic Age globes answer the most rigid requirements for an outdoor light globe. *Excellent light transmission properties.* Save replacement time — *eliminate hazards* to pedestrians, automobiles and utility work crews. Weigh 1/10th as much as a glass globe. May be stacked one into the other *without* warehouse breakage.

Available for all major types of luminaires.

NO BREAKAGE FROM BB'S, PELLETS, OR ROCKS

No penetration from rocks, BB's or pellets. Small arms fire will enter but not shatter. Chopped glass fibers at hole edges tend to reseal to prevent insect entry.

WRITE TODAY FOR DETAILS

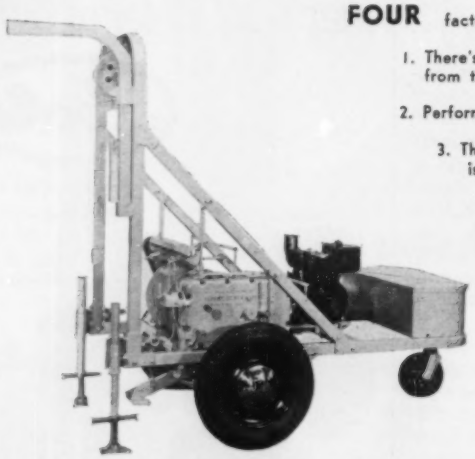
Complete brochure and order information available on request.

COMMERCIAL PRODUCTS DIVISION
PLASTIC AGE SALES, INC.
14300 DAVENPORT ROAD
MINT CANYON, CALIFORNIA

TURCO

MAXI-POWER Sewer Cleaning Unit

Note the STIFF LEGS—quickly adjustable to compensate for uneven ground.



Sewer Cleaning Brushes, Buckets, Ferrets, Flushing Bags, Rods, carried in stock for immediate delivery

ONE unit consists of:

TWO machines, located at the ends of the sewer section to be cleaned.

TWO models (501 and 502) each with 3-speed transmission, enable you to get the exact power and line speed you need:

	1st gear	2d gear	3d gear
#501	11000 lbs.	9000 lbs.	7000 lbs.
#502	15000 lbs.	12000 lbs.	9000 lbs.

FOUR facts to consider:

1. There's a unit exactly right for any city, from the largest to the smallest.
2. Performance is easy, quick, thorough.
3. The original full flow of the sewer is restored.
4. Each part is designed and engineered for long life.

Write for catalog

Turbine Sewer Machine Company
Division of
Chas. H. Stehling Co.
1303 North Fourth St.
Milwaukee 12, Wis.

It's So Cool On FLORIDA'S EAST COAST

RANCH STYLE FURNISHED APTS. AND MOTEL ROOMS—BRING YOUR FAMILY
Superb climate—seashore cool breezes. Finest fishing. Family fun—attended beach, barbecue areas, children's safe playgrounds. Shops, Restaurants, Golf and Sightseeing. 1, 2, 3 bdrm. Apts.

Rates include FREE use of:

- Olympic Pool
- Shuffleboard
- Fishing Dock
- Auto Parking
- Private Atlantic Ocean Beach

Write Today For Rates and Information.

COMPLETE APARTMENTS FOR TWO $55.00 wk to Dec 15

Flamingo VILLAGE
Ft. Pierce Beach, Florida

Nine Models of Motor Graders

With the introduction of Model 502, the PETTIBONE NEW YORK DIV. of PETTIBONE MULLIKEN CORP., CHICAGO, ILL., now offers a choice of nine models in its line of motor graders.

The new Model 502 offers an exclusive combination of planetary axles, four wheel drive, four wheel steer, four wheel brakes, power shift transmission and torque converter.

The power shift transmission gives four forward speeds up to 19.1 mph, and four reverse speeds up to 23.5 mph. The combination of the torque converter and planetary axle reduction at the wheel hubs helps to absorb shocks and eliminates axle breakage. Four independent 16" x 4" face hydraulic brakes and a separate parking brake are standard equipment.

Standard equipment also includes: Full hydraulic steering; 12' x 24" x ¾" hydraulic sideshift moldboard; 106 HP GMD 3-71 Diesel engine; and 14:00 x 24-10 ply tires.

Optional equipment includes: Combination manual and hydraulic steering: 123 HP GMD 4-71 Diesel engine: 13' and 14' moldboard; and 12 or 16 ply tires. Total weight with GMD 3-71 engine is 23,000 lbs., and 23,200 lbs. with the GMD 4-71 engine.

This model 502 has been added by the Pettibone-Mulliken Corp. to its line of motor graders. Model 502 combines planetary axles; 4-wheel drive, steering and braking; power shift transmission and torque converter.

New Kelly-Creswell Spray Gun Makes Road Striping Easier

Kelly-Creswell Company, Xenia, Ohio, has a new automatic striping gun for use on highway and industrial road marking equipment. Gun is patented. The gun is diaphragm-operated which eliminates the air cylinder and upper packing gland found in most spray guns. This eliminates the greatest cause of air loss in automatic spray guns. The new gun requires about 25% less air to operate at peak efficiency.

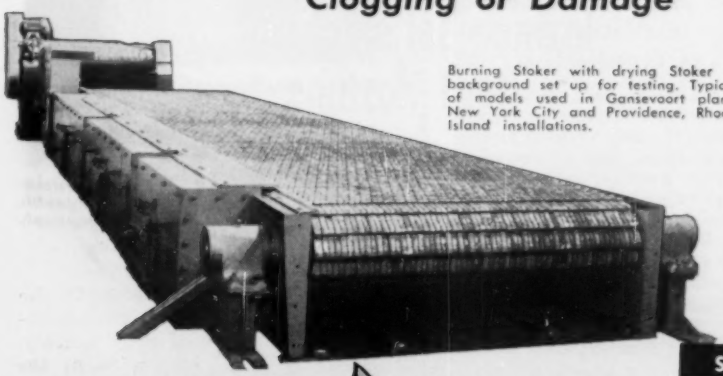
The gun is being installed on all the various types of striping equipment made by Kelly-Creswell. Also available as a replacement part.

Kelly-Creswell is a pioneer manufacturer of a complete line of road-marking equipment—truck-mounted, power driven and hand operated.

For more details, see pages 921 through 924 of the 1960 Municipal Index, or write to:

Kelly-Creswell Company
Xenia, Ohio

Original Overlapping Link Design on Illinois Incinerators Eliminates Possible Clogging or Damage



Burning Stoker with drying Stoker in background set up for testing. Typical of models used in Gansevoort plant, New York City and Providence, Rhode Island installations.

Overlapping Design of links or keys on both the chain-grate and bar-key models prevents clinkers or non-flammable items from catching between the links causing possible damage to the stoker and reduces sifting of material through the grates.

Cast Steel links are used on both models unless otherwise specified, as cast steel affords greater resistance to heat and abrasiveness than does ordinary cast iron.

Automatic feed and continuous discharge of decontaminated residue eliminates heavy stoking and cleaning.

CUSTOMIZED TO YOUR NEEDS

Built in any size up to 24 feet wide. Any number of tuyeres for most efficient zone control. Supervised assembly at your plant.

YOU SPECIFY — WE SATISFY

Illinois Stoker

Manufacturers of:
INDUSTRIAL STOKERS • INCINERATOR STOKERS • SINTERING MACHINES

SEND COUPON TODAY

Illinois Stoker Co.
Alton, Illinois
Dept. AC 060

Gentlemen: We're interested. Please send full details.

FIRM NAME _____

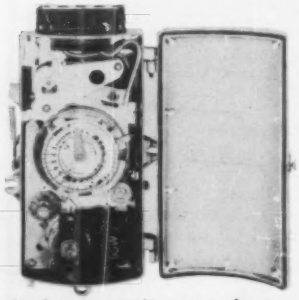
ADDRESS _____

CITY _____ ZONE ____ STATE ____

SIGNATURE _____

"CLEAN AS A HOUND'S TOOTH?"

NO... CLEAN AS A TIME SWITCH



Perhaps astronomic time switches won't ever become as popular a symbol for cleanliness, but after 90 seconds in an Acoustica Ultrasonic Unit they're *better* than "hound's-tooth clean"... *without even being disassembled.* New York City, for example, has 250,000 such switches to turn its street lights on at sunset, off at sunrise. Formerly, when airborne dust and soot clogged a switch's precision gears, it had to be torn down into 50 separate pieces, hand cleaned, and re-assembled... 30 minutes or more per switch. Now, the complete switch is placed in an Acoustica Ultrasonic Unit and in *just 1/20th of the time* is completely clean, ready for lubrication, re-installation and another three to five years of dependable service.

NEW: *Acoustica's fully transistorized "20-KC" line of ultrasonic cleaning systems brings new speed and efficiency to your production cleaning operations. Available in standard sizes from 3 to 6 gallons; special systems up to 500-gallon capacity. (Illustrated: 3-gallon SC-252 System.) Acoustica also offers a complete line of standard 40-KC cleaning systems.*

FOR COMPLETE EQUIPMENT DESCRIPTIONS AND AN ANALYSIS OF **YOUR** CLEANING PROBLEMS, WRITE TO ACOUSTICA OR CONTACT YOUR NEAREST ACOUSTICA REPRESENTATIVE.

acoustica

ACOUSTICA ASSOCIATES, INC.

10400 Aviation Blvd., Los Angeles 45, Calif. • 600 Old Country Road, Garden City, N.Y.

Purchasing

Compartmented Refuse Collector Body

Gar Wood's new compartmented Load-Packer refuse collection body, will allow municipalities to collect and separate trash and garbage, for it loads different materials in the same unit, hauls them completely separated, and dumps the load at different discharge points.

Materials are loaded into the split-hopper; the sweeper panel then carries them into their respective compartments for compaction. When dumping, an individual retaining panel holds the load in one compartment while the other is discharged. The remaining load can then be dumped separately at a different discharge point.

Metal partitions form compartments within the body. Two, three, or more compartments may be built into the unit. The units are so designed that loads can't mix, and complete water-tight separation is maintained at all times.

For complete information write GAR WOOD INDUSTRIES, INC., WAYNE, MICH.

This compartmented Load-Packer dumps from the side. Salvageable materials can be handled, completely separated, with ease.

Postage Meters

Postage meters made to fit the needs of large or small municipalities to handle mail more quickly, efficiently and economically are manufactured by PITNEY-BOWES, INC., 8576 PACIFIC ST., STAMFORD, CONN. These meters, compact in size, can seal and stamp up to 150 letters a minute and can also be equipped to stamp a brief publicity note about a city. They provide an automatic account of postage use and protect postage from loss, damage or misuse.

Miniature 2-Way Radio System

This limited range system for person-to-person communications, utilizes a completely transistorized transmitter-receiver unit weighing only 12 ounces, including batteries. It is known as the "TELEPATH" Miniature Communications System, and is announced by Seiscor Division of Seismograph Service Corp., of Tulsa, Okla.

The belt-clip model (6" x 3" x 1¼", including batteries) includes a transmitter-receiver unit which clips on to the wearer's belt, a control unit that clips on the wearer's shirt, and a headset which includes earphones, microphone and built-in antenna. The helmet model has a built-in transmitter-receiver unit, built-in earphones and antenna, and a microphone. Both models are available with a variety of different microphones to provide intelligible communications under all noise conditions.

TELEPATH Systems may be used indoors or out, as either a complete network in themselves, or as part of an existing communications network. They are available for use on any single frequency between 20 and 50 mc, with citizen band systems not requiring a license of any kind.

For complete information, write SEISCOR DIVISION OF SEISMOGRAPH SERVICE CORP., P. O. BOX 1590, TULSA, OKLA.

Does a better job... saves money, too!

Designed for municipalities needing quality license in any quantity. Not an ordinary decal or sticker. Won't tear, wrinkle, bubble! Impossible to remove without completely mutilating. Variety of designs including all state shapes. Brilliant two or three color reproduction.

Send for our free catalog of Kantoff and metal license, signs, badges. 6025

S.G. Adams 10th & OLIVE
PRINTING & STATIONERY CO.
920 Olive St. • St. Louis, Missouri

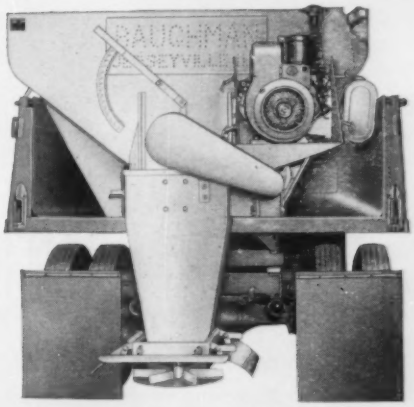
Baughman Model K-5 S-C

. . . DUMP MOUNTED SPREADER gives dependable ice control (and cost control, too!)

Less than 15 minutes after a bad weather alert, dump trucks can be ready to roll as full-fledged ice-control units. This fast conversion is simple with the Baughman Model K-5 S-C Spreader Body — the remarkably versatile spreader that is saving thousands of dollars for street and highway departments throughout the United States.

The Baughman Model K-5 S-C hoists readily into any standard dump body, secures with turnbuckle hold-downs. Spreader holds 5.5 cu. yds. of salt, cinders, sand; discharge is a one man cab-controlled operation. Width of spread and density are completely adjustable. Wisconsin auxiliary engine.

Better service through better engineering. Service and parts from 200 dealer branches.



WRITE TODAY for illustrated folder A-450

6041

BAUGHMAN MANUFACTURING CO., INC.
Jerseyville, Illinois

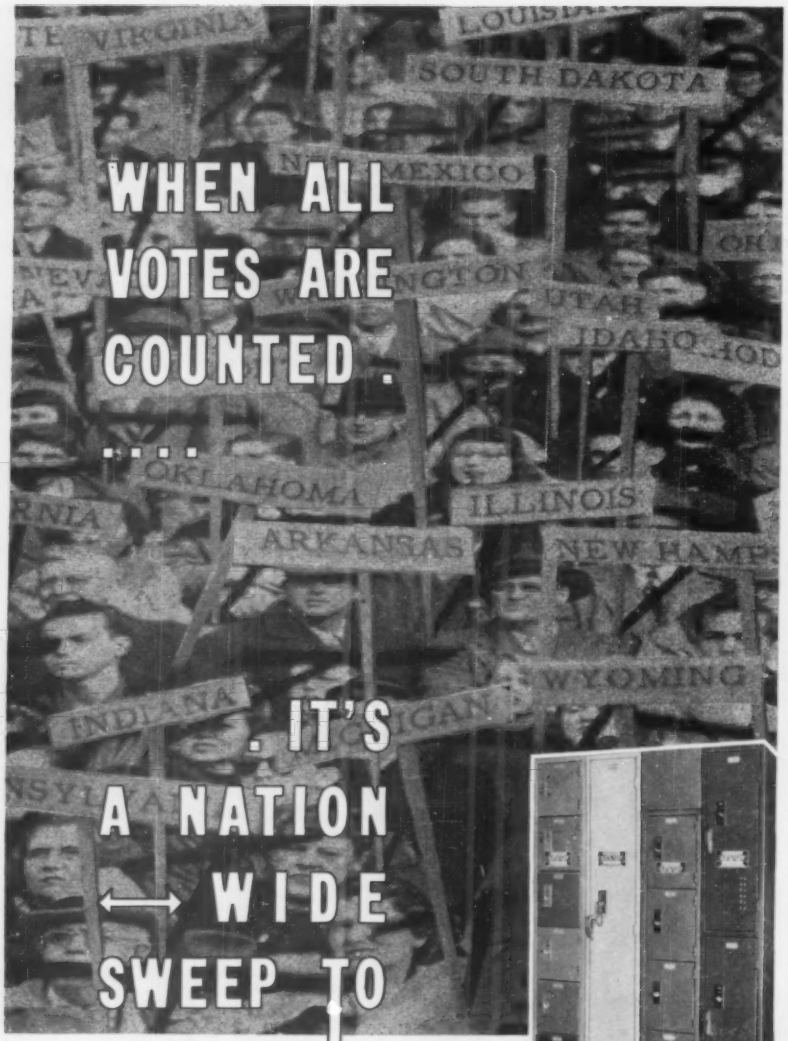
I would like Baughman K-5 S-C Spreader literature (A-450)

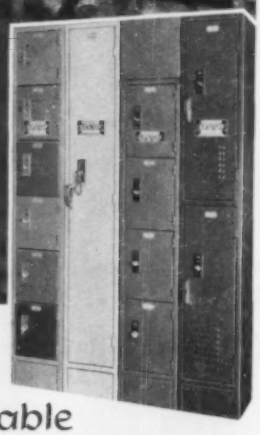
Name.....

Address.....

City.....State.....

BAUGHMAN MANUFACTURING CO., INC.
307 SHIPMAN ROAD • JERSEYVILLE, ILLINOIS





AMERICAN'S *carefree, profitable* **COIN-LOK* PLAN**

- Offers maximum checking convenience and security.
- Provides automatic self-service on "pay" or "refund" basis.
- Eliminates costly labor and supervision.
- Can be applied to existing lockers.
- You buy – or lease locks with no lock maintenance to worry about, no replacement costs of lost keys or broken locks. American takes over the whole job.
- Over 50 locker sizes available in a wide choice of colors.

*T. M. — American Locker Co., Inc.

COMPARE COIN LOCKS – COMPARE SPECIFICATIONS
COMPARE PRICES

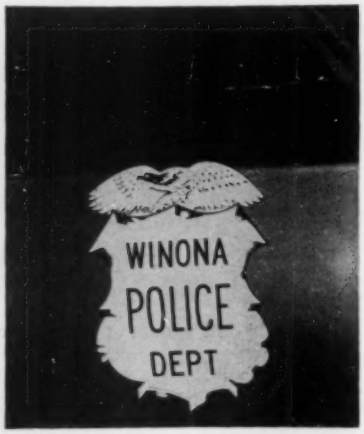
AMERICAN LOCKER COMPANY, INC.
Dept. 410, 211 Congress Street, Boston, Mass.
OLDEST AND LARGEST COIN LOCK MANUFACTURER

COIN LOCKER CHECKING SYSTEMS LOK*

Purchasing

Police Vehicle Insignia

As a result of action taken by the Minnesota Chiefs of Police Association at a recent meeting in Winona, municipalities in the State of Minnesota are being urged to adopt a standard insignia for all police vehicles.



The new insignia, a shield, is 15 inches by 20 inches and is gold with black border and letters. The name of each community appears in the center. Its size conforms to the Minnesota "marked car statute" which will require both front doors of all police vehicles to be white.

The insignia is made of non-reflective plastic film or "Scotchlite" brand of reflective sheeting, which is highly visible in the headlights of approaching cars. The sheeting is a product of Minnesota Mining and Manufacturing Co., St. Paul 6, Minn.

Durable Non-Creep Traffic Markers

Cities looking for a traffic-lane marker that is easy to apply, durable, with long visibility characteristics, and not subject to creep now have a highway-department tested product.

The Ohio Highway Department is now marking dangerous railroad grade crossings with reflectorized Plastix "RR" and "Stop" bars, following successful test applications at two crossings. The first of these installations are scheduled for 110 grade crossings with bad accident histories.

The Department has already installed 28 "Turn" arrows and 22 "Stop" bars at eleven intersections also using Plastix markers. These

intersections have severe traffic where paint has proved unable to stand the gaff.

The permanent-type Plastix has proved able to stand up under traffic and weather for years. Coated with a special adhesive, it adheres immediately to the surface of the highway, and under traffic quickly becomes almost an integral part of the pavement withstanding the wear under cinders, salt and even snow plows. It is a product of PRISMO SAFETY CORP., HUNTINGDON, PA.

These "RR" legends have proved their durability in exacting tests by the Ohio Department of Highways.

A Gravely Service Film

A new Gravely Service Film has just been completed on the correct method to service and rebuild a Gravely Tractor. It takes you step-by-step through the disassembly of "Old 8719," a Gravely Tractor manufactured in 1943 and in use until it was traded in, in 1959.

Then the film shows the re-assembly of the tractor, adding all of the new improvements made on Gravely Tractors to this date. It suggests shop technique, shows the use of a few special tools making your work easier. It tells of some of the shortcuts, tricks of the trade, that make your work faster, better —to help you do a quality job.

The film contains about 35 minutes of visual action—you actually see what has to be done, and how it is accomplished. By means of the sound track, a narrator speaks throughout the film, explaining what is being done, in what sequence and why it is done that way.

This film may be obtained from GRAVELY TRACTORS, DUNBAR, W. VA., for a nominal fee.

ALWAYS "UNDER CONTROL"

OVER 20 YEARS OF EXPERIENCE IS THE REASON!

MODEL 5940-1
TUBELESS

CONFORMS EEI-NEMA STANDARDS

Send for Free Literature!

SunSwitch DIVISION

RIPLEY COMPANY, INC., MIDDLETOWN, CONN.

HAMMOND 1999 DOG TAX 300

OFFICIAL MARKING

DOG LICENSE and RABIES TAGS of Quality

For highest quality at the right price—you can depend on Meyer & Wenthe—headquarters for durable dog and cat licenses, rabies tags and other revenue-producing license markers since 1854.

M & W tags are available in brass, aluminum, nickel silver, and anodized, permanent-colored aluminum, in green, yellow, red or blue. Furnished in design and lettering you want — with city, town or village, year, and consecutive numbering sunk into the metal. Standard or special shapes —with or without links.

Write for details and prices today.

MEYER & WENTHE, Inc.

Dependable Marking Devices Since 1854

30 S. Jefferson Street, Chicago 6, Illinois

DITCH WITCH TRENCHER

The measure of Success

CALL COLLECT

COMPARE

IZE: DIGS FROM 4" TO 16" WIDE AND UP TO 6' DEEP

OSTS: AS LITTLE AS 2c PER FOOT!

BILITY: JOB PROVEN!

IFE: AS HIGH AS ½ MILLION FEET!

ASE OF OPERATION:

See a demonstration!

CALL COLLECT!

CHARLES MACHINE WORKS, INC.

603 BIRCH ST. • CALL COLLECT, FE 6-4404 • PERRY, OKLA.

Two-Stage Snow Thrower

The Bob-Cat, Model 820, announced by the Wisconsin Marine Co., Lake Mills, Wis., cuts a 20-inch swath with ease through all types of snow, from slush to crusted ice.

In the first stage, its Sno-Flo feeder, through the action of the high speed blades, draws snow into the feeder, and moves the load into second stage high-speed thrower.

The 14-inch impeller blades in the second stage turn in the same direction in which the machine is traveling, lift and throw the snow through the discharge chute. As a result, the manufacturer reports, the Bob-Cat throws more snow faster than any comparable-sized machine. For details, write Wisconsin Marine Co., Lake Mills, Wis.

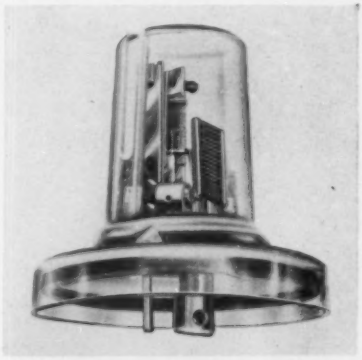
New Photo Control For Outdoor Lighting

A new tubeless control for outdoor lighting with a price 10% to 20% below previous bid levels is now being offered by Precision Multiple Controls, Ridgewood, N. J., whose photoelectric control units presently are used on some 400,000 street lighting poles in every state of the union.

The new unit, "Multiplex," embodies the same two-component circuitry used on these field installations but will sell at $12.70 per unit.

Eight single-pole, single-throw models that fit any NEMA-standard locking type fixture head are offered at the single price. It can be adapted to any installation, including pendant and old-style solid head fixtures, through the use of 12 mounting accessories.

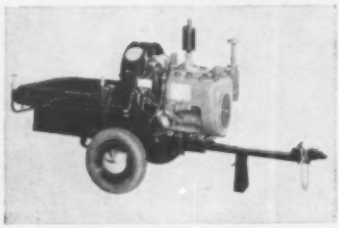
It carries a one-year guarantee.



"Multiplex" is the name of this new tubeless control unit for outdoor lighting being offered by Precision Multiple Controls, at a price 10 to 20% lower than previous bid levels.

Broaden Your Profit Potential

With LINDSAY RADIAL TYPE AIR COMPRESSORS FROM 55-125 CFM



Model T55-A

Model 80

Model 125

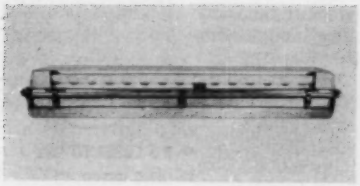
Lindsay compressors are the most portable, compact and powerful air compressors available for their capacity. The single unit, direct drive design results in the construction of rugged, compact machines easy to operate and maintain. See your dealer for details today.

LINDSAYS Are . . .

- **Truly Portable**
- **Light in Weight**
- **Low in Original Cost**
- **Low in Operating Costs**
- **Built for Continuous Operation, Every Day**

P. K. LINDSAY CO., INC.
Deerfield, New Hampshire
Everett 49, Mass.

Constant Light Output at 0° to 77° F.



Thermoelectrically cooled fluorescent luminaires achieve maximum light output over a wide range of temperatures. At 77° F ambient temperature, the light output of the cooled luminaire is 72% higher than an identical luminaire without the thermoelectric device. Light output is nearly constant throughout an ambient temperature range of below 0° F to above 77° F.

Used with any high output lamp, the thermoelectric device inside the fixture automatically adjusts to different lamp bulb diameters. The luminaire is a 6-foot, 4-lamp, shallow unit employing four Peltier thermoelectric heat pumps for spot cooling the fluorescent lamps.

For further information, write to LINE MATERIAL INDUSTRIES, MC-GRAW-EDISON CO., MILWAUKEE 1, WIS.

Tandem Rollers Have New Features

The new Buffalo-Springfield Deluxe tandem rollers KT-24E (8 to 12 ton) and KT-25E (10 to 14 ton) have extra features that add to their usefulness and convenience of operation. Both models have torque converter drive as standard equipment and feature exclusive adjustable bevel gear final drive, fully enclosed armored frame, single unit power assembly, full working visibility, rigid frame construction and many other quality components.

A new 4-page bulletin 3 issued by BUFFALO-SPRINGFIELD CO., 1210 KENTON ST., SPRINGFIELD, OHIO, describes these new models in detail.

New 30-Yard Refuse Truck Body

Thirty cubic yard capacity at the price of a 27-yard body is what the COBEY CORP., GALION, OHIO, is ready to offer in its new Pak-Tainer refuse and garbage body—which is a combination collection and dump body.

The company points to simplified design which results in weight saving. The bottom-hinged, jaw-crusher type packer blade produces a compaction force in excess of 65,000 lbs.

The unit can be used with the centrally located large steel containers of from 1 to 6 cubic yards. Steel trash containers, when filled, are picked up by hydraulically operated lift arms extending beyond the front bumper, raised upward, rearward and dumped into the top of the body. Pak-Tainer Refuse Bodies are presently built in 27- and 30-cubic yard capacities.

From Boulevard to congested street

FRINK REVERSIBLE SNO-PLOWS clear the way—fast

Congested city streets call for quick action when snow strikes. FRINK Sno-Plows get in and clear the way fast. They're built ruggedly, for hard service . . . often are in nearly continuous duty during severe winter weather.

FRINK Reversible Sno-Plows with Trip Blades plow left or right or bulldoze straight ahead, end wasteful deadheading. Maneuverable for cleanup in areas of parked cars. Dependable for high-speed plowing in open stretches of boulevard. Several models available with hydraulic or manual reverse for trucks from 1½ tons up.

Send for full details on versatile FRINK Reversible Trip Blade Sno-Plows. Write for your fully illustrated catalog.

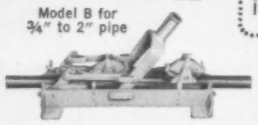
FRINK SNO-PLOWS, Inc.

FRINK SNO-PLOWS, INC., CLAYTON, 1000 ISLANDS, N. Y. EASTERN STEEL PRODUCTS, CO., PRESTON, ONTARIO, CANADA

• V-Type • Roll-Over • One-Way • Reversible Trip • Leveling Wings

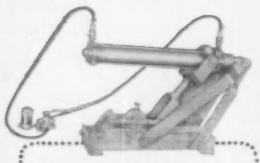
Only the
Trojan Pipe Puller & Pusher
gives you continuous action . . .
No Resetting of Grip!

CUTS COSTS! SAVES TIME-
in installing or renewing pipe under pavement



The Trojan combines pushing and pulling operations in one machine—eliminates all time-killing resetting of grip—keeps pipe continuously moving. Does the job at lower cost—in far less time.

Model A weighs 65 lbs.—requires only 5' trench. One man can easily install the average service. 15 tons of pushing pressure possible. Also available for ½" pipe.



NEW AIR POWERED Model B
Does all the work for you. Handles ¾" to 2" pipe.

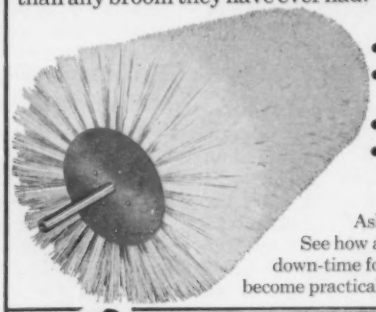
Model B (either manual, hydraulic or air powered) needs only a 6' trench—has 3 speeds for different soils—is reversible in 30 seconds. Push pipe comes in 30" lengths, assures straight travel.

Write today for full details!

The TROJAN Manufacturing Co.
1113 Race Drive • Troy, Ohio

Well I'll be d.....!

Everyone's remark when they see the startling RADAX Broom Coil demonstration. Never before anything like it—for low price—for speed—for long life and—users say it sweeps better than any broom they have ever had!



- NO CORES TO BUY
- LONG WEARING Plastic Filament
- PRE-FABRICATED
- "JET-SPEED" FILLING
  5 minutes or less for a new refill—READY TO GO!

Ask for a demonstration. See how and why your sweeper down-time for broom renewals will become practically nil.

PRICES DELIVERED TO YOUR SHOP

SWEEPER MAKE and MODEL	SR FILAMENT	TYNEX NYLON
MOBILE 54" BROOM	$195.85	$293.15
MOBILE 58" BROOM	$208.30	$310.60
WAYNE 450, 460, 520 and 550	$169.75	$252.50
ELGIN STREET KING	$258.20	$388.10
ELGIN WHITE WING	$258.20	$388.10
ELGIN 20, 30, and 81	$270.15	$399.95
AUSTIN-WESTERN 40	$208.15	$303.55
AUSTIN-WESTERN 60	$230.75	$333.20

RYNAL CORPORATION
114 ST. JOSEPH ST. • ARCADIA • CALIFORNIA

PHOTO COURTESY OF CITY OF TOLEDO, OHIO

HI-RANGER Makes One Man A WHOLE TEAM

A Hi-Ranger aerial tower, equipped with an all-hydraulic chain saw and pruning tool, enables one man in a few minutes to do exactly the same job it normally takes a whole crew half a day to accomplish by any other method.

Large and small cities across the nation find Hi-Ranger an indispensible tool for overhead park and street maintenance, for utility and line work, for street and traffic light installation or maintenance, and for dozens of other municipal work problems above ground level.

When speed, safety and operating flexibility are important, specify Hi-Ranger. Reach ranges from 32 feet, up. CALL, WIRE OR WRITE NOW.

HI-RANGER Mobile Aerial Towers, Inc.
1730 N. Harrison St. • Ft. Wayne, Ind.

GAS HOLDERS
for recovery of sewage gasses

Many municipalities are salvaging sewer gas for fuel, through the use of COLE gas holders similar to the one pictured. Send us your inquiries for tanks of this type—as well as for elevated water storage tanks . . . Take advantage of our 106 years of specialized knowledge and experience in serving America's municipalities and industries and discuss your problems with us. Visitors are always welcome at our plant. Stop by and see us.

Elevated Tanks, Pressure Vessels, Chemical and Processing Equipment from Aluminum, Stainless and Carbon Steel, Monel and Other Alloys.

Established 1854

R. D. COLE MANUFACTURING CO.
COLE
NEWNAN, GEORGIA

John Deere Offers Complete New Tractor Line

An entirely new line of tractors was unveiled last August 29-30 in Dallas, Texas, when Deere & Company arranged one of the most spectacular sales meetings in tractor history. Some 6,000 persons, most of them sales personnel from the United States, Canada and 15 other countries, attended the meeting. More than 5,000 were airlifted within 24-hours.

The new line of tractors results from an order to "throw the book away" and develop designs independent of any previous restrictions. Of the 65 patents used in the new tractor line, 50 are new, developed exclusively for the new equipment. These range from those for a new medically-approved seat for the tractor operator to the new powerful hydraulic systems with their selective hitch response.

The equipment has variable-speed engines, of either four or six cylinders; a new multi-speed syncro-range transmission, powerful hydraulic system; hydraulic power brakes; a new power steering system, etc.

C. R. Carlson, Jr., vice president in charge of marketing, announced expansion in power sizes of tractors used for earthmoving, landscaping and material handling.

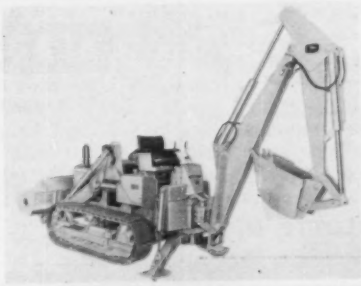
Two crawler tractor series will be manufactured in 40 and 50 hp sizes. Wheel tractors include four models of 40, 50, 60, and 85 hp. Equipment for these includes backhoes, loaders, bulldozers, mowers, and other attachments.

On the crawler-loader units, a single lever controls all movements of both the loader lift arms and the bucket. On both crawlers, a new T-bar control for all hydraulic bulldozers will command all four operating functions—angle, tilt, lift, and cut. The control lever is engineered so that the operator virtually "holds the blade in his hand."

Although John Deere has aimed its principal sales effort at the farm market, president William A. Hewitt reports that the company is winning an increasingly greater share of the construction, industrial and municipal market for tractors. In 1955, these sales amounted to only $11 million. Last year they reached $48 million, and in the close future, he expects them to be in the area of $125 to $150 million.

Details on the complete lines of these new tractors will be supplied from the company's world headquarters, JOHN DEERE & COMPANY, MOLINE, ILL.

This tractor, of the same model, with front-end loader, will also be popular in municipal work.



Units such as this John Deere 1010 industrial crawler-loader with backhoe will find plenty of use in most cities.

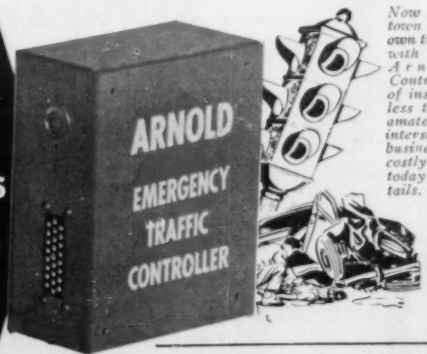
THE NEW TELESCOPING
WARNING-SCOPE
by
Hawkins
THE NAME IN HIGHWAY SAFETY

Illustration height 11 feet. Leg spread diameter 61 inches. Basic assembly only weighs 15 pounds. Knurled locking nuts adjust height as desired. Nylon Vinyl Fluorescent Flags. Nylon Vinyl Roll-up sign or clamps to hold metal signs. High tensile aluminum staffs and sturdy steel tripod base compactly folds to 6 by 43 inches.

Write for Pamphlet and Prices.
Distributors Invited

Mfgrs:
Hawkins-Hawkins Co., Inc.
1255 Eastshore Highway
Berkeley 10, California

AVOID COSTLY ACCIDENTS and Lawsuits
RESULTING FROM
TRAFFIC LIGHT CONTROLLER FAILURE



Now even the smallest town can handle its own traffic emergencies with this inexpensive Arnold Emergency Controller, regardless of installation used. In less than a minute an amateur can put an intersection back in business. Why take costly chances. Write today for complete details.

- Saves Money
- Saves Time
- Saves Lives

Arnold Electric Co., Inc., Winfield, Ill.

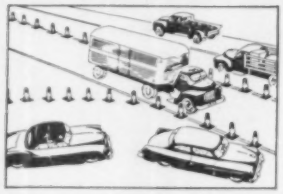
HERE is the answer to EMERGENCY BARRICADES

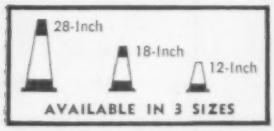
Lightweight, Easily-Adaptable

SAFE-T-CONE
TRAFFIC GUIDES

SAFE-T-CONES are proven and accepted by Federal, State and Municipal traffic authorities in hundreds of major cities ...for traffic channeling, utility repairs, line painting and emergency blockades.

SAFE-T-CONES are easily adaptable to all situations at a moment's notice. Special construction allows them to be "stacked" in small space.





Solid-Color PVC* POLY-CONES—18-inch and 28-inch sizes. Outlasts ordinary cones without upkeep!

*Poly-Vinyl Chloride

For full information write
RADIATOR SPECIALTY CO., CHARLOTTE, N. C.

APCO

Super DeLavaud
CAST IRON PIPE

For long years of dependable, trouble-free service specify APCO's Cast Iron Pipe — quality controlled from raw materials to finished products.

Sizes 3" to 24" in modern long lengths — Bell and Spigot, Altite Joint® and Mechanical Joint.

ALTITE JOINT®
Protected by Patent
Underwriters Approved

ALABAMA PIPE COMPANY
DIVISION OF WOODWARD IRON COMPANY
General Offices—General Sales Office
Anniston, Alabama

SALES OFFICES
122 South Michigan Ave., Chicago 3, Ill.
950 Dirks Building, Kansas City, Mo.
5335 Southern Ave., South Gate, Calif.
350 Fifth Ave., New York 1, N. Y.
18505 W. Eight Mile Rd., Detroit 41, Mich.
2101 N. Webster St., Kokomo, Ind.

Sam Patton, County Engineer, Guernsey County, Ohio, recommends

FENCE FIRE
The heavy-duty brush and vegetation killer

"Fence Fire delivers a more perfect and quicker kill," says Mr. Patton, "with less applications and at a much lower net cost." It's also non-volatile . . . won't harm crops with drifting or vapors. Try Gledhill's new FENCE FIRE and see. NOW! . . . New Fence Fire contains large and wild animal repellent.

If you do your own spraying, use a *Gledhill Roadside Sprayer.* Now offers complete control of spraying width . . . economizes on chemicals and allows constant speed spraying regardless of width of spray being used.

THE GLEDHILL ROAD MACHINERY CO.
Galion, Ohio

No other filtering medium compares with

ANTHRAFILT
Trade Mark Reg. U. S. Pat. Off.

Anthrafilt stands alone as the one Filtering Medium that is best for all types of filters.

Years of efficient and economical use in every type of filter plant has made ANTHRAFILT the standard of excellence in the filtering medium field.

ANTHRAFILT
offers important advantages over sand and quartz

DOUBLES length of Filter runs • REQUIRES only half as much wash water. • KEEPS Filters in service over longer periods. • INCREASES Filter output with better quality effluent. • GIVES better support to synthetic resins. • PROVIDES better removal of fibrous materials, bacteria, micro-organic matter, taste, odor, etc. • IDEAL for industrial acid and alkaline solutions. • EFFECTIVE filtration from entire bed. • LESS coating, caking or balling with mud, lime, iron, or manganese.

IDEAL FOR USE IN EVERY TYPE OF FILTER

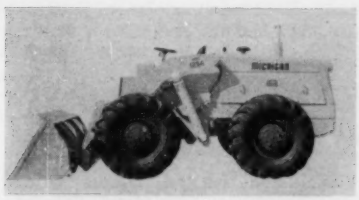
Write for further information, test samples and quotations to:

PALMER FILTER EQUIPMENT CO.
P. O. Box 1696 — 822 E. 8th St., Erie, Pa.
Representing:
ANTHRACITE EQUIPMENT CORP.
Anthracite Institute Bldg., Wilkes-Barre, Pa.

Tractor-Shovel Option

Increased tractor shovel production, versatility and ease of handling are cited as objectives of the new options offered by CLARK EQUIPMENT CO., CONSTRUCTION MACHINERY DIVISION, BENTON HARBOR, MICH., for its Michigan 125A.

The new diesel engine for the 125A is a 124-hp General Motors Model 4-71. It is also available with a 127-hp Waukesha Model 135GK gasoline engine or a 122-hp Cummins Model JN diesel unit.



The Michigan 125A will handle either snow or stockpile materials.

When equipped with a 2¼ yard standard excavating bucket, the Model 125A has a 13,000-pound lifting capacity. Optional buckets, ranging in capacity from 1⅝ to 4 cubic yards, are now available.

A rotary snow plow attachment, capable of handling 1200 tons of snow per hour adds versatility.

Fund Raising for Philanthropic Activities

The American City Bureau, pioneer professional fund raising organization, has established an eastern regional office in New York at 470 Park Avenue South.

The appointment of W. D. Curry, vice president and director of the Bureau, as head of the eastern region is announced by Lowell H. Brammer, chairman of the board. Mr. Curry has been associated with the American City Bureau since 1942. Assisting him will be veterans of the regular permanent organization of the Bureau. Since its founding in 1913, the American City Bureau has given professional guidance in helping nearly 4,000 voluntary fund-raising campaigns for hospitals, schools, churches, community funds and civic projects throughout the nation.

INCINERATION
WITH
Air Pollution Control
MORSE BOULGER INC.
BUILDERS OF THE MOST MODERN INCINERATOR PLANTS IN THE WORLD

FREE Incinerator Facts
☐ Municipal Bulletin 111-C
☐ Industrial Bulletin 184-A

Contact us, or have your architect or consulting engineer tap our 70 years experience solving Waste Disposal problems—large or small. No obligation.

MORSE BOULGER INC.
80 FIFTH AVENUE, NEW YORK 11, Dept. 27

Representatives Everywhere
Member: Incinerator Institute of America, Air Pollution Control Assoc.

WATER SUPPLY

Economics, Technology, and Policy

A book of major importance – thoroughly assesses our water resources and utilization, and demonstrates that existing supplies are grossly misallocated. Alternative lines of future development are suggested, together with economic criteria on which water supply use should be based.

Includes full-scale evaluations of two important "water crises" and proposals for their solution – the *Cannonsville Project* for New York City, already under construction, and the pending *Feather River Project* in southern California, which, if approved in this November's election, will cost Californians three billion dollars. $7.50

By Jack Hirshleifer, James C. De Haven, and Jerome W. Milliman

A RAND Corporation Research Study
400 pages. Maps, tables, charts.

through your bookseller, or from
UNIVERSITY OF CHICAGO PRESS
5750 Ellis Avenue, Chicago 37, Illinois

FREE—send today!

TEL KEE

The MOORE KEY CONTROL® System

FREE TELKEE booklet answers that question for you; shows how TELKEE saves you time and money, gives you new convenience.

STOPS time wasted locating lost or borrowed keys

MINIMIZES expensive lock replacement and repairs

ORGANIZES all your keys in one orderly system

What's more, TELKEE guarantees maximum security and privacy—keeps keys in authorized hands, always.

Offices, factories, stores, schools, housing, hospitals . . . there's a TELKEE System to fit every size and type of application. TELKEE solves every key problem, efficiently, inexpensively.

P. O. Moore, Inc., Glen Riddle 62, Pa.
Send FREE TELKEE booklet
NAME_____
FIRM_____
ADDRESS_____
CITY_____ ZONE____ STATE_____

Clean Water Meters now in FIVE Minutes —

with VAPOR BLAST
Liquid Honing*

...no acids, solvents, scrapers, wire brushes

Meters and parts at Milwaukee Water Works before and after Liquid Honing.

Modernize *your* meter cleaning — with Vapor Blast LIQUID HONING! Removes dirt, discoloration, scale, paint from corners, crevices, internal parts, chambers, thoroughly and effectively, with *no possibility* of scratching, scoring, or change in precision tolerances. Completely cleans a meter and all parts in less than FIVE minutes . . . Delivers cleaner, brighter water meters that look like new — to build customer satisfaction and confidence in your water meter department *economical* replacement program.

VB Liquid Honing is proving itself in Milwaukee, Cincinnati, and in towns in New Jersey, Georgia, Florida. Get the whole time-saving, money-saving story on VB LIQUID HONING in meter cleaning — or send a meter for Free laboratory demonstration cleaning.

*Vapor Blast and Liquid Honing are Trademarks

VAPOR V-B BLAST

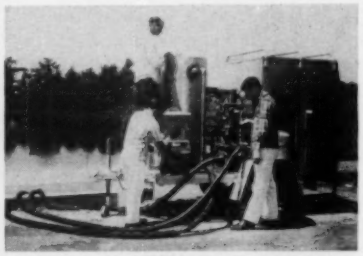
VAPOR BLAST MFG. CO.
3037 W. Atkinson Ave., Milwaukee 9, Wisconsin

Purchasing News

Trailer Mounted Diatomite Test Unit

B-I-F Industries' new Treatment Trailer is now available to municipalities planning plant additions or new facilities for water purification. The trailer eliminates guess work about whether vacuum diatomite filtration will do the job by making a test demonstration of the particular raw source selected.

The treatment trailer serves as a pilot plant, determining the applicability, efficiency and economy of vacuum diatomite filtration—either for the plant expansion to meet seasonal demand or for primary supply. It can deliver purified water at the rate of 30 gpm.



For additional information or to arrange for a demonstration write HENRY N. ARMBRUST, B-I-F INDUSTRIES, 345 HARRIS AVE., PROVIDENCE, R. I.

Purchasing News Briefs

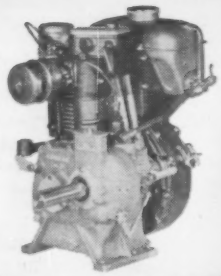
• **Willamette Iron and Steel Co.**, Portland, Ore., has assigned divisional status to its valve manufacturing operations, named Casi Cadrecha, Jr., manager, and Earl H. Atkinson, sales manager over valves and valve equipment. sales.

• exclusive United States sales rights to the **United Metal Cabinet Corporation** line of waste receptacles has been awarded to the newly-formed United Metal Receptacle Corp., 27-29 Ocean Ave., Jersey City, N. J.

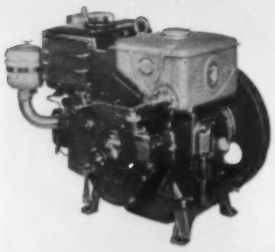
BIG JOB...SMALL ENGINE?

YANMAR

DIESEL DOES IT!



SAFE
COMPACT
DEPENDABLE
VERSATILE



4-Cycle — AIR-COOLED — Single Cyl. 2 to 4½ BHP — 2000/3000 RPM. LIGHT WEIGHT — EASY STARTING. Especially recommended for PORTABLE & EMERGENCY EQUIPMENT.

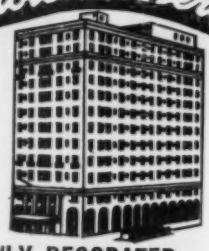
A Precision Product of the New Japan. Made to U.S. specifications by the world's largest manufacturer of small diesels. COMPLETE ACCESSORY LINE. All engines and parts stocked in the U.S.A.

4-Cycle — WATER-COOLED — Single Cyl. 2 to 8 BHP in 2000 RPM range. COMPLETELY SELF CONTAINED. Easy starting — smooth running for GENERAL PURPOSE APPLICATIONS.

YANMAR

for literature and dealer information write:
CONTINENTAL MACHINERY CORP.
19402 So. Susana Rd., Compton, Calif.
Mailing Address: P. O. Box 5309, Long Beach 5, California

Hotel Bossert



NEWLY DECORATED UNDER NEW MANAGEMENT

- One subway stop from Wall St. — 15 min. from Times Square
- 400 Rooms
- 2 & 3 rm. suites, also kitchenettes
- Air-Conditioning
- Television
- Restaurant, Bar & Cocktail Lounge
- Banquet Facilities
- Convenient Parking

Singles from $5.50
Suites from $12.00

MA 4-8100
Montague & Hicks Streets

BROOKLYN HEIGHTS, NEW YORK

Purchasing

• word from **American Well Works** of Aurora, Ill., is that its entire line of pumps, water purification and sewage treatment equipment is now available through its expanded Rental Division. Included in the plan is the newly introduced OXY-PAK total oxidation package sewage treatment plant for smaller communities.

• **Sparkler Mfg. Co.**, producers of municipal, industrial and commercial filtration equipment, has formally opened its newly constructed sales headquarters and plant in Conroe, Texas, and reports manufacturing capacity already exceeds that of the combined output of the two Illinois plants from which it moved its operation in March.

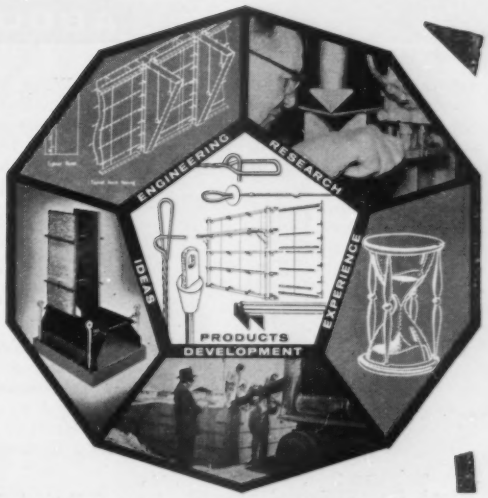
• new sales representatives appointed by **The Fisher-Pierce Co.**, Braintree, Mass. manufacturers of electrical and electronic equipment and photoelectric controls for street lighting, are: A. C. Stohn Associates, 25 Bryant Ave., East Milton 86, Mass—for New England; and Dale P. Seyfried Co., 20424 Plymouth Road, Detroit 28, Mich.—for the entire state of Michigan.

• receipt of a contract to supply some 18,000 feet of 16" O. D. pipe with a wall thickness of ¼", to be used to augment the water system of the City of Fayetteville, N. C., is announced by **Cal-Metal Pipe Corporation of Louisiana**, Baton Rouge. The contract marks Cal-Metal's first big step in water system pipe production.

• **Chrysler Corp., Marine and Industrial Engine Division**, will market Perkins diesel engines in the United States and Canada. This arrangement with F. Perkins Ltd. of Peterborough, England, world's largest diesel manufacturers, provides a complementary line of marine industrial and agricultural diesel engines to augment the extensive Chrysler M.&I. line now produced.

• **James B. Clow & Sons, Inc.**, Chicago 80, Ill., is joining forces with General Industries, Ltd. of Australia to build a $3 million cast iron pressure pipe plant in Melbourne, Australia, in joint and equal ownership. The new company will be known as Metters-Clow Pty., Limited.

Results don't "just happen" with Gates Forming



It's no accident that more and more builders are turning to Gates Forming Systems for results that can be counted at the bank. Behind these results is Gates' unique combination of ideas, engineering, research and experience... constantly at work to develop the products and techniques that prove "right" for every type of concrete forming... large or small.

USE GATES IT'S GALVANIZED

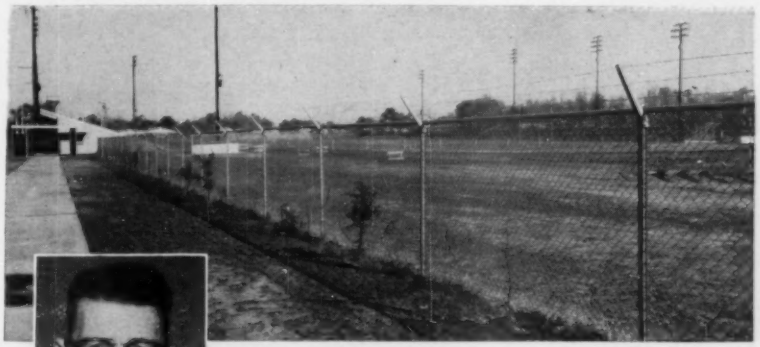
Gates & Sons, Inc.

THERE'S A GATES SYSTEM FOR EVERY FORMING NEED

80 South Galapago Street • Denver 23, Colorado

Branches in Spokane, Rochester, Calgary
Representatives in principal North American cities

CONSULT OUR CATALOG IN SWEET'S 1960 ARCHITECTURAL & LIGHT CONSTRUCTION FILES, OR WRITE FOR COMPLETE INFORMATION ON GATES CONCRETE FORMING SYSTEMS & TECHNIQUES



"... solved a number of unusual traffic and protection problems..."

says J. C. Lindsey, Maintenance Supt., County School System, Princess Anne, Virginia

"Anchor Fence has been installed at all 18 schools in our county system. From past experience we know Anchor Fence can be depended on to stand up under hard usage with very little maintenance. As for our new high school, Anchor Fence solved a number of unusual traffic and protection problems. And of course it does a great job on guarding against trespassing, pilferage and accidents."

Call your local Anchor office today for a talk with one of Anchor's trained sales engineers. Write for free catalogue to: ANCHOR FENCE, Eastern Ave., Baltimore 24, Md.

ANCHOR FENCE
Division of ANCHOR POST PRODUCTS, INC.

Plants in Baltimore, Md.; Houston, Texas; and Whittier, Cal. • Sold direct from factory branches in all principal cities

ABOUT PEOPLE

The appointment of Charles B. Leber to advertising manager of Caterpillar Tractor Co., Peoria, Ill., has been announced by Lee Morgan, sales development manager. Mr. Leber succeeds Burt M. Powell, retired, and, in turn, is succeeded as manager of the sales division of the defense products department by Frank S. Foster.

C. B. Leber

New assignments at **Dorr-Oliver Inc.,** Stamford, Conn., directed at centralization of related functions include the following: William J. Fox, formerly vice-president-engineering, has been assigned to the newly created post of vice president-domestic operations; Douglas C. Reybold assumes responsibility for the research, development, legal and patent functions and will report directly to the president; H. J. Talbot, managing director—Europe; Harry E. Lundberg, director of engineering; Glenn O. Wilson, to the newly created post of director of technical coordination; and Charles A. Schreiber as manager of engineering coordination, and Jack S. Chasteen as manager of filtration engineering.

Charles W. Nichols, Jr., president, announces the election of Isaac B. Grainger to the board of directors of **Nichols Engineering & Research Corp.,** New York, N. Y. Mr. Grainger, who has just completed his term as president of the New York Chamber of Commerce, is a director of Chemical Bank New York Trust Company, New York Central Railroad and Hartford Fire Insurance Co.

I. B. Grainger

The Fisher-Pierce Co., South Braintree, Mass. manufacturers of electrical and electronic controls for utilities and industry and of photoelectric street lighting controls has promoted Michael D. Dingman from the position of assistant sales manager to sales manager.

M. D. Dingman

J. Wiley Perry, Jr., has been elected vice president and general sales manager of the **Alabama Pipe Division of Woodward Iron Co.,** Anniston, Ala. He succeeds E. S. Bobbitt, who has retired but who continues in a consultant capacity.

The Board of Directors of **Aero Service Corp.,** Philadelphia 20, Pa., has announced the appointment of Robert H. Randall as vice president.

Appointment of Roger G. Dittig, Jr., as field representative for the **Cast Iron Pipe Research Assoc.,** has been announced by Thomas F. Wolfe, managing director. He will serve the New England states and Pennsylvania, New Jersey, New York, Delaware, Maryland. Headquarters will be in Bethlehem, Pa.

The Board of Directors of **United States Pipe and Foundry Co.,** Birmingham, Ala., have elected Robert E. Garrett president and chief executive officer of the company. He succeeds Claude S. Lawson, who was elected president in 1952 and chairman of the Board and president in 1954. Mr. Lawson continues as chairman of the board of directors.

R. E. Garrett *C. S. Lawson*

According to A. E. York, sales manager for the Construction Equipment Machinery Division of **Clark Equipment Co.,** Benton Harbor, Mich., Robert D. Noble will provide sales and marketing services to distributors of Michigan construction equipment in Louisiana, Mississippi, Alabama, western Tennessee and western Florida.

J. W. Arnold has been named president and general manager of the **Parsons Co.,** Newton, Iowa, a division of the Koehring Co., Milwaukee, Wis. and a manufacturer of trenching machines. Prior to this appointment, Mr. Arnold was vice president in charge of manufacturing for the Hydraulic Press Manufacturing Co., another Koehring division.

J. W. Arnold

John L. Salladin has been named sales manager of the Industrial Computer Systems Department and J. Wesley Leas, manager of the Data Communications and Custom Projects Department of the Electronic Data Processing Division **Radio Corporation of America,** New York 20, N. Y.

The Heil Co., Milwaukee 1, Wis., has announced the recent appointment of Joseph T. Schaab to the position of district manager of its sales office in Seattle, Wash. In addition to serving the State of Washington, this office also serves the states of Alaska, Idaho, Oregon and a portion of Montana.

J. T. Schaab

H. S. Smith has withdrawn as a partner of **Stanley Engineering Co.,** Muscatine, Iowa and Chicago, Ill., to do graduate work and research at the State University of Iowa. Remaining partners in the firm are C. Maxwell Stanley, Arthur E. Stanley and Sanford K. Fosholt. Roy F. Vanek and Frank W. Edwards are associates.

On September 1, after 31 years of leadership, E. S. Dulin retired from Byron Jackson Pumps, Inc., Los Angeles, Calif. Mr. Dulin was president of the company from 1929 to 1958 and has also served as chairman of the board since 1945.

E. S. Dulin

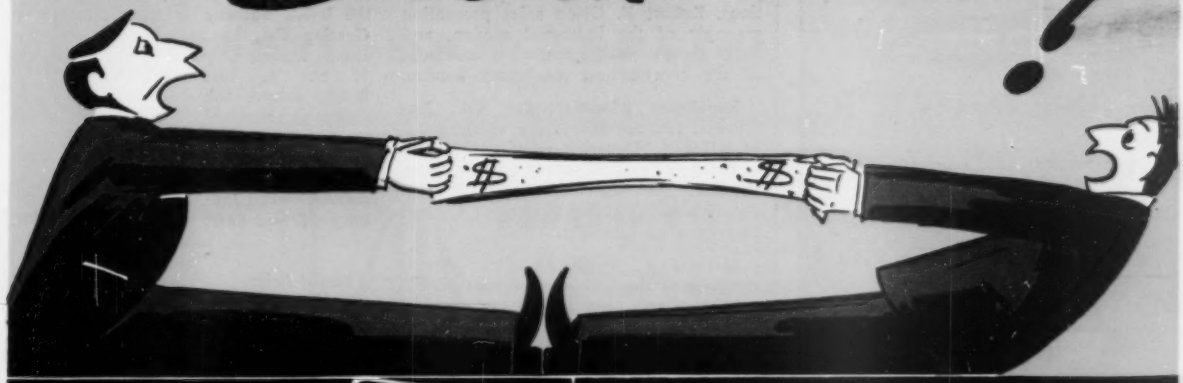
This Borg-Warner subsidiary also reports the promotion of James K. Chaney to the position of district manager of its Kansas City (Mo.) office.

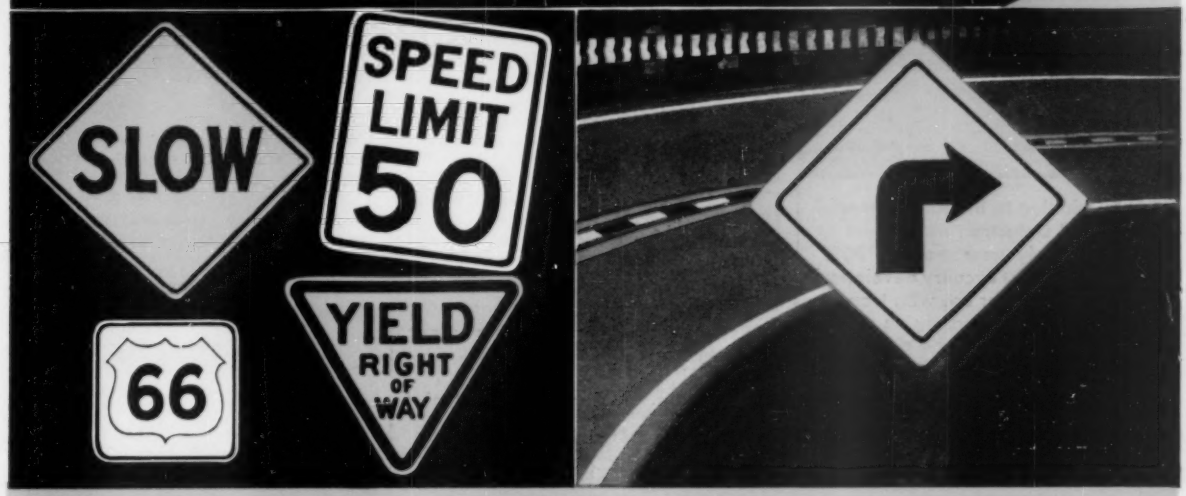
The appointment of C. Freeman as manager - advertising and sales promotion of **Worthington Corp.,** Harrison, N. J. has been announced by T. J. Kehane, vice president-marketing. Worthington's products include pumps and compressors; air conditioning, heating and construction equipment; steam power machinery, motors and generators; engines, turbines, valves and instruments.

C. Freeman

(Continued on page 232)

TRYING TO *Stretch* YOUR SIGN BUDGET?





Reflectorize with *Lead-Free* No. 831 (High Index) and UB 68 (Medium Index) Sign Kits

Write today for free booklet. Contains test and specification data, application procedures, and other helpful information.

If you're in a sign budget dilemma, you'll solve your problem more readily with optical quality No. 831 and UB 68 Reflective Glass Beads. No. 831, best for white and yellow signs, and UB 68, for application in the darker pigmented colors, are *lead-free* ... won't turn dark, provide extra reflectivity throughout a longer life for greater safety and economy.

Bead budgets go farther ... the result of better research and engineering and advanced methods of manufacture. And with today's overall improvements in quality, gradation, and application techniques, you have the combination that spells better reflectorized signs for less—with *whitest white, lead-free, optical quality* glass beads by Flex-O-Lite. Write for details.

FLEX-O-LITE

FLEX-O-LITE MANUFACTURING CORP.

8301 Flex-O-Lite Drive, St. Louis 23, Missouri
Flex-O-Lite of Canada, Ltd., P. O. Box 216, St. Thomas, Ontario, Canada • Paris, Texas
MAKERS OF DROP-ON • FREE-FLOWING
STANDARD • MILITARY • MOISTURE-PROOF • HIGH AND MEDIUM INDEX SIGN BEADS

ALL NEW!
FULLY TRANSISTORIZED
Detectron
PIPE DETECTOR

In addition to the famous model "505" Detectron now offers its completely new model "808" with the first circuitry developed specifically for use with transistors. It is NOT merely an adaptation of earlier tube circuits.

Efficient under every known operating condition, effective in varying temperatures, thoroughly proven and trustworthy. Superior performance and reliability guaranteed.

EXCLUSIVE FEATURES

- ▲ Detects Deeper by all comparisons
- ▲ Automatic Switching for direct connection
- ▲ 95% Energy-Transfer-Ratio
- ▲ Printed Circuits, properly shielded
- ▲ Separate Oscillator System
- ▲ Highly Perfected Loop Antennas
- ▲ Economical Standard Long-Life Batteries
- ▲ Built-In Battery Testers
- ▲ Snap-Lok Connecting Handle
- ▲ Aluminum Cases for maximum protection

Written Lifetime Guarantee on CMC parts and workmanship

For specifications and prices, write for File No. AC-10

COMPUTER-MEASUREMENTS CO.
Utilities Instruments Div.
12970 BRADLEY, SYLMAR, CALIF.

About People

(Continued from page 230)

Chain Belt Co., Milwaukee 1, Wis., has named G. H. Pfeifer director of product merchandising and public relations, Robert F. Olson sales promotion manager of the industrial section, and Jack Heaps sales promotion manager of the construction machinery section.

Baughman Manufacturing Co., Jerseyville, Ill., announces the appointment of Allen A. Deverick as vice president in charge of sales, Zachary Dean as sales manager for the company's Western District, and Edward Brown as Central District sales manager.

Herbert L. Eggleston, Jr., general manager of the **Goldak Company,** Glendale 1, Calif., electronics instrumentation firm, announces the promotion of William S. Kincaid to the post of sales manager.

P. W. Thompson is now sales representative in New York for the **Illinois Stoker Co.** of Alton, Ill., custom-manufacturer of chain grate stokers and both chain grate and bar/key type incinerator stokers.

As manager of Steel Plate Sales, Midwest Division of **Pittsburgh-Des Moines Steel Co.,** Pittsburgh 25, Pa., F. C. Warrington will cover the tier of midwestern states.

Charles S. Brady has been promoted to the position of sales manager of the **Irving Subway Grating Co., Inc.,** Long Island City 1, N. Y. Mr. Brady joined the company in 1959 as assistant sales manager and has been acting sales manager since January of this year.

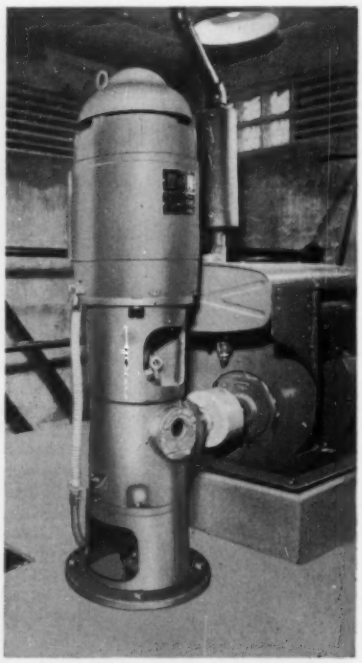
C. S. Brady

David J. Byrd has been named general manager of **City Tank Corp.,** Corona, N. Y., a division of Hagen Industries, Inc. and manufacturers of Roto-Pac refuse collection units for municipalities, private sanitation contractors and industrial users. Prior to joining City Tank Mr. Byrd had been associated with Gar Wood Industries as general sales manager.

David J. Byrd

For positive protection against power failures, install

JOHNSON
Right angle
GEAR DRIVES



Cross State Development Co. installed the Johnson combination drive shown here in a sewage disposal plant in Florida. They report: "It's recognized as one of most efficient, packaged systems in the Tampa area. We've never experienced any difficulty." Neither will you because Johnson combination drive assures engine take-over the instant electricity fails. Either power unit may be overhauled without interrupting service.

Sizes: 15 to 450 hp. Johnson Right Angle Gear Drives are available in combination, dual and standard types; for all horizontal prime movers; hollow or solid shaft. Please write for engineering catalogs.

JOHNSON · MAKERS OF FINE GEARS SINCE 1904
GEAR & MANUFACTURING CO., LTD.
8TH AND PARKER STREETS • BERKELEY 10, CALIFORNIA
East and Gulf Coast representatives:
Smith Meeker Engineering Co., 157 Chambers St., New York City

7-R

The American City

Professional Service Directory

STANLEY ABEL
Public Administration Consultant
376 West Sixth Street
Perris California

ABBOTT & ADAMS INC.
Real Estate Appraisers & Consultants
Urban Renewal Re-Use Appraisals Economic Studies
Market Analysis Marketabilty Programs Redevelopment Studies
331 Madison Avenue, New York 17, N. Y. MUrray Hill 7-1255

ALBRIGHT & FRIEL INC.
Consulting Engineers
Water, Sewage, Industrial Wastes and Incineration Problems, City Planning, Highways, Bridges and Airports, Dams, Flood Control, Industrial Buildings, Investigations, Reports, Appraisals and Rates.
Three Penn Center Plaza
Philadelphia 2, Pa.

Abrams Aerial Survey Corporation
Over one-third century of Experience
606 E. SHIAWASSEE STREET
Complete facilities for all aerial photography, processing, photogrammetric drafting and reproduction.
Planimetric, topographic maps and profiles. Large scale atlas sheets. Infra-red for forestry analysis.
LANSING 1, MICHIGAN

ALLEN & HOSHALL
Consulting Engineers
Mechanical—Civil—Electrical
Municipal Improvements
65 McCall Place
MEMPHIS, TENNESSEE

AERIAL SURVEYS, INC.
Maps and Aerial Photographs
For all Planning and Engineering Purposes
14 Prospect Ave. Cleveland 3, Ohio

ALVORD BURDICK & HOWSON
ENGINEERS
Water Works Sewage Disposal
Water Purification Drainage
Flood Relief Appraisals
Sewerage Power Generation
20 North Wacker Drive, Chicago 6, Ill.

EXPERIENCE COUNTS: Dependable Photo Maps, Topographic Maps, Tax Maps
AERO SERVICE CORPORATION
Oldest Flying Corporation in the World • Founded 1919
HEADQUARTERS: 210 E. Courtland St., PHILADELPHIA 20. OFFICES: 1401 S. Detroit St.
TULSA; 34 Richard St., SALT LAKE CITY 10; 68 Post St., SAN FRANCISCO

"WHO'S WHO"
City Departments can depend upon this directory as a thoroughly reliable "Who's Who" Among Consulting Engineers Specializing in Municipal Work."

WEED CONTROL PROGRAMS
AQUATIC • TERRESTRIAL • HIGHWAY • STREET
ALLIED BIOLOGICAL CONTROL CORP.
19 Milk Street, Boston 9, Mass. • HAncock 6-7009
Biological Surveys Made of Weed Infested Water Recreation Areas

JOHN J. BAFFA
Consulting Engineers
Drainage Swimming Pools
Sewerage Water Supply & Treatment
Sewage Treatment Industrial Wastes
Refuse Disposal Rate Studies
75 West St. New York 6, N. Y.

ALSTER & ASSOCIATES, INC.
AERIAL SURVEYS
TOPOGRAPHIC • PLANIMETRIC • MOSAIC MAPS
AERIAL MAPPING CUTS SURVEY COSTS
write for free brochure on mapping and aerial photography
6135 KANSAS AVE., N.E., WASHINGTON 11, D. C., Phone TAylor 9-1167

SCOTT BAGBY
ROBERT CATLIN
Modern Comprehensive City and Area Planning and Development
"Plans Which Can Be Carried Out"
45 Broadway, Denville, N. J.
1500 Margaret S.E., Grand Rapids, Mich.

AMERICAN AIR SURVEYS, INC.
Aerial Topo Maps • Aerial Photos & Mosaics • Tax Maps
907 PENN AVE., PITTSBURGH 22, PA.
BRANCHES: MANHASSET, N. Y.—ATLANTA, GA.—A NATIONWIDE SERVICE

MICHAEL BAKER JR., INC.
The Baker Engineers
Civil Engineers—Planners—Surveyors—Municipal Engineers—Airport Design — Sewage Disposal Systems — Water Works Designs and Operations—Consulting Services—Surveys and Maps
Branch Office—Jackson, Miss.
Home Office—Rochester, Pa.

Municipal Tax Revaluations Appraisals
ASSOCIATED SURVEYS
Real and Personal Property Tax Maps
29-31 Howe Ave., Passaic, N. J.
311 Bellemeade St., Greensboro, N. C.

The American City Professional Service Directory

B & B ENGINEERING CORPORATION
FIRE ALARM, TRAFFIC AND PROTECTIVE SIGNALING
MAIN OFFICE, NORWOOD, LOUISIANA
TELEPHONE, WILSON, LA., 46-J

JOHN J. BEHRENDS AND ASSOCIATES
Consulting Engineers
SPECIALIZING IN
TRAFFIC — PARKING — REPORTS — SURVEYS
801 SOUTH BLVD., OAK PARK, ILL. ST. PETERSBURG, FLA.

BENHAM ENGINEERING COMPANY
and Affiliates
215 N.E. 23rd Street Oklahoma City, Oklahoma

BLACK & VEATCH
Consulting Engineers
Water Supply, Water Purification, Electric Lighting, Power Plants, Sewerage, Sewage Disposal, Gas, Valuations, Special Investigations and Reports.
1500 Meadow Lake Parkway Kansas City 14, Missouri

BROWN ENGINEERING COMPANY
Consulting Engineers
K. P. Building Des Moines 9, Iowa

BUCHART ENGINEERING CORPORATION
- Planning—Studies and Analyses—Reports—Design
- Municipal Sewer & Water Systems
- Commercial & Industrial Plants
- Subdivisions & Housing
- City Planning
- Highway & Bridges
- Schools & Parks
- Dams
- Airports

611 West Market St., York — Pennsylvania — 920 Columbia Ave., Lancaster

BUCK, SEIFERT AND JOST
Consulting Engineers
Water Supply, Sewage Disposal, Hydraulic Developments, Valuations and Reports.
Chemical and Biological Laboratories.
112 East 19th Street New York 3, N. Y.

Philip Burgess
Chester A. Niple
Ben K. Bare
Clayton C. Bull
B F. Hatch
Raymond Fuller
Tahlman Krumm
R. E. Peters
Robert Wolfe

BURGESS & NIPLE
CIVIL AND SANITARY ENGINEERS
WATER AND SEWAGE CONSULTANTS
2015 WEST FIFTH AVENUE COLUMBUS 12, OHIO

Design
Construction
Reports
Planning
Valuations
Rates
Supervision
Laboratory

RALPH H. BURKE, INC.
Consulting Engineers
Plans Construction Supervision Reports
Complete Architectural and Engineering Services
Expressway Grade Separations Municipal Works
Underground Garages Parking Structures Traffic Studies
Airports and Air Terminals Buildings Parks Field Houses Shore Protection
505-508 W. HIGGINS ROAD PARK RIDGE, ILL.

BANISTER ENGINEERING CO.
Consulting Engineers
Staffed to completely fill municipal requirements for professional services.
310 North Snelling Ave.
St. Paul 4, Minnesota
Tel. Midway 6-2612

CITY DEPARTMENTS
can depend upon this Professional Service Directory as a thoroughly reliable "Who's Who" among Consulting Engineers Specializing in Municipal Work.

E. D. BARSTOW
Sanitary Engineer
Water Supply—Water Treatment
Sewerage—Sewage Treatment
Reports—Plans—Construction
163 N. Union St., Akron 4, Ohio

HARLAND BARTHOLOMEW AND ASSOCIATES
City Planners — Civil Engineers
Landscape Architects
Atlanta, Ga. — St. Louis, Mo.
Honolulu, Hawaii

HOWARD K. BELL
Consulting Engineers
G. S. Bell C. G. Gaither J. K. Latham
J. Wiley Finney, Jr.
Water Works Sewerage
Water Purification Sewage Treatment
Swimming Pools Refuse Disposal
Industrial Wastes
533 S. Limestone St., Lexington, Ky.

CLINTON BOGERT ENGINEERS
Consultants
Clinton L. Bogert Ivan L. Bogert
Donald M. Ditmars Robert A. Lincoln
Charles A. Manganaro William Martin
Water & Sewage Works Incinerators
Drainage Flood Control
Highway and Bridges Airfields
145 East 32nd St., New York 16, N. Y.

LOUIS P. BOOZ
Consulting Engineer
Incineration
Sanitation
Water Treatment
Industrial Wastes
51 E. 42 St., New York 18, N. Y.

Bowe, Albertson & Associates
Engineers
Sewage and Water Works
Industrial Wastes—Refuse Disposal—Municipal Projects
Industrial Buildings—Reports
Plans—Specifications
Supervision of Construction and Operation—Valuations
Laboratory Service
75 West St., New York 6, N. Y.

Briley, Wild & Associates
Consulting Engineers
Reports Supervision
Designs Appraisals
Consultations
8 N. Wild Olive Avenue
Daytona Beach, Florida

The American City Professional Service Directory

FLOYD G. BROWNE AND ASSOCIATES
Consulting Engineers
Water Works, Sewerage, Power and Industrial Plants, Industrial Waste, Laboratory, Reports, Design, Supervision.
123 W. Church St., Marion, Ohio

CAMP, DRESSER & McKEE
Consulting Engineers
Water Works, Water Treatment, Sewerage, Sewage Treatment, Municipal, Industrial Wastes, Investigations, Reports, Design, Supervision, Research, Development, Flood Control.
18 Tremont St., Boston 8, Mass.

CANDEUB, FLEISSIG & ASSOCIATES
Consulting Municipal Planners
Community Planning, Urban Renewal Studies, Regional Planning.
32 Green Street, Newark 2, New Jersey

Capitol Engineering Corporation
Consulting Civil Engineers
Dillsburg, Pennsylvania, U.S.A.

THE CHESTER ENGINEERS
Water Supply and Purification
Sewage and Industrial Waste Treatment—Power Plant—Incineration—Gas Systems
Valuations—Rates—Management
Laboratory—City Planning
801 Sulamon St.
Pittsburgh, 12, Pa.

WILLIAM G. CHRISTY
Consulting Engineer
Air Pollution Control
Combustion Smoke Control
38 Park Row, New York 38, N. Y.

CLARK, DAILY AND DIETZ
Consulting Engineers
Sewerage, Waterworks, Street Lighting, Highway, Swimming Pools, Surveying and Mapping, Land Development Studies, Bridges, Buildings, Foundations.
211 North Race St. Urbana, Illinois — 188 Jefferson St. Memphis, Tennessee

C. C. COLLINGS & CO., Inc.
Financial Consultants
Specialists in Direct Obligation, Revenue & Municipal Authority Financing
Fidelity-Philadelphia Trust Bldg.
Philadelphia (9), Penna.

Bring Your Professional Services to the attention of municipal officials who consult this directory regularly. Insert your listing in either single- or triple-card space at a very nominal charge.
Write us for particulars
THE AMERICAN CITY
470 Park Avenue South, New York 16

BURNS & McDONNELL
ENGINEERS — ARCHITECTS — CONSULTANTS
4600 E. 63rd St. Trafficway — Kansas City 41, Missouri

HOMER L. CHASTAIN & ASSOCIATES
Consulting Engineers
Civil, Structural, Mechanical, Industrial Design & Supervision, Construction, Engineering, Turnpikes, Bridges, Water Supply, Sewerage, Flood Control & Drainage, Material Controls, Municipal Engineering, Topographic Surveys.
155½ WEST MAIN STREET — DECATUR, ILLINOIS

Chicago Aerial Survey
10265 Franklin Ave.
Franklin Park, Ill.
GLadstone 1-0380
A Division of Chicago Aerial Industries, Inc.
Aerial photography since 1923. Complete photogrammetric services for city, county, highway and consulting engineers. Developers of Sonne Strip Photography.
PHOTOGRAMMETRIC ENGINEERS
- Base maps and atlas sheets.
- Precise topographic maps for sewerage studies, construction planning and site location.
- Scaled mosaics and pictorial presentations.
- Highway studies. Street and road maps. Sonne photography.

CLARK AERIAL SURVEY CORP.
Custom Service
Topographic Maps — Mosaics — Reconnaissance Strips — All Types of Aerial Photography
Frank T. Lodge II, President
45075 N. Territorial Rd. — GLenview 3-5430 — Plymouth, Michigan

THE J. M. CLEMINSHAW COMPANY
"Our 37th Year"
APPRAISALS — REVALUATIONS
Specializing in the revaluation of Real Estate and Personal Property for local tax equalization purposes. Illustrated brochure on request.
1601 BROOKPARK ROAD, CLEVELAND 9, OHIO

CHAS. W. COLE & SON
Engineers and Architects
3600 E. Jefferson Blvd.
South Bend, Indiana
2112 W. Jefferson St.
Joliet, Illinois

REVALUATIONS
CLT
APPRAISALS
COLE • LAYER • TRUMBLE CO. / 11 W. MONUMENT AVE. • DAYTON 2, O.
Municipal Tax Revaluations / Illustrated Brochure on Request

CONSOER, TOWNSEND & ASSOCIATES
Consulting Engineers
Sewage treatment, sewers, storm drainage, flood control—Water supply and treatment—Highways and bridges—Airports—Urban renewal—Electric and gas transmission lines—Rate studies, surveys and valuations—Industrial and institutional buildings.
360 EAST GRAND AVENUE — CHICAGO 11, ILLINOIS

DAMON & FOSTER
Consulting Civil Engineers and Surveyors
Water Supply, Sewerage, Sewage Disposal, Surveys, Land Subdivision, City and Town Planning, Reports, Design, Supervision
Sharon Hill — Pennsylvania

The American City Professional Service Directory

DAY & ZIMMERMANN, INC.
CONSULTING ENGINEERS

INCINERATOR PLANTS
VALUATIONS AND APPRAISALS
POWER PLANTS
TRAFFIC AND TRANSIT

NEW YORK PHILADELPHIA CHICAGO

DE LEUW, CATHER & COMPANY
Consulting Engineers

Public Transit Expressways Urban Renewal Railroad Facilities Municipal Works
Traffic & Parking Grade Separations Subways Industrial Plants Port Development

150 North Wacker Drive, Chicago 6 San Francisco Toronto Boston

DRAKETOWN®
PROPANE PLANTS
☆ *Standby* ☆ *Augmentation* ☆ *100% Town Supply*

DESIGN • ENGINEERING • CONSTRUCTION

DRAKE & TOWNSEND, INCORPORATED
11 WEST 42nd STREET NEW YORK 36, N. Y.

EDWARDS AND KELCEY
Engineers and Consultants

Traffic — Transportation — Parking — Expressways — Airports — Public Works
Surveys — Reports — Design — Supervision

3 William Street, Newark 2, New Jersey

Boston Providence Salt Lake City New York Minneapolis

ELECTRICAL TESTING LABORATORIES, INC.
Electrical, Electronic, Environmental, Photometric and Chemical Laboratories. Testing, Research, Inspection and Certification
In-Plant Acceptance and Witness Testing
Wire and Cable—Paper—Street Lighting Fixtures
Checking of Instuments and Apparatus
2 EAST END AVENUE, NEW YORK 21, N. Y.

EMPIRE GAS ENGINEERING CO.
P. O. Box 1738.
Atlanta 1, Georgia

LP-gas peak shaving and stand-by plants for
- municipalities
- industry
- design
- construction

EWIN ENGINEERING CORPORATION
Engineers — Consultants

Municipal Planning—Highways—Design and Supervision of Municipal Projects—Sewage Systems—Water Systems—Bridges—Port and Harbor Development

Washington 16, D. C. — 5104 MacArthur Boulevard, N. W.

150 Savannah Street, Mobile, Alabama DuPont Plaza Center, Miami, Florida

36 YEARS OF CITY MAPPING EXPERIENCE
FAIRCHILD AERIAL SURVEYS, INC.

Large scale photomaps . . . detailed topographic mapping . . . automatic cross sectioning . . . planimetric maps . . . for all planning and engineering uses.

Los Angeles: 224 E. 11th Street • New York: 9 Rockefeller Plaza • Chicago: 400 W. Madison Street • Boston: New England Survey Service, Inc., 255 Atlantic Ave. • Birmingham: 2229 1st Ave. N. • Denver: 2620 S. Ivy

Ford, Bacon & Davis
Design *Construction* Engineers *Reports* *Valuation*

New York • Chicago • San Francisco • Monroe, La.

Crawford, Murphy & Tilly
Consulting Engineers
Water Works—Impounding Reservoirs
Highways — Municipal Streets — Expressways — Traffic Problems — Airports — Swimming Pools — Sewers Sewage Treatment, Wastes Treatment—Storm Drainage—Flood Control Surveys and Reports.
755 S. Grand Ave., W. Springfield, Ill.
LAKESIDE 8-5619

Fay, Spofford & Thorndike, Inc.
Engineers
Airports—Bridges—Express Highways
Port Developments Water Supply
Sewerage and Drainage Systems
Industrial Buildings Incinerators
11 Beacon St.
Boston 8, Massachusetts

Finkbeiner, Pettis & Strout
Consulting Engineers
Water Supply, Water Treatment, Sewerage, Sewage Treatment, Bridges, Highways & Expressways.
2130 Madison Avenue, Toledo 2, Ohio

"WHO'S WHO"
City Departments can depend upon this Directory as a thoroughly reliable "Who's Who Among Consulting Engineers Specializing in Municipal Work."

FRIDY-GAUKER-TRUSCOTT & FRIDY
Architects—Engineers
Water Supply & Treatment, Sewers & Waste Disposal, Incineration, Roads, Airports, Power & Lighting, Schools, Private & Municipal Buildings.
Reports, Plans Supervision
1321 Arch Street, Philadelphia 7, Pa.

GEE & JENSON
Consulting Engineers, Inc.
Municipal Utilities & Services
Ports & Terminals
Airports & Industrial Planning
Feasibility Reports — Land Planning
Cocoa — Ft. Myers — Dunedin
117½ South Dixie, West Palm Beach, Florida

GEORGE A. GIESEKE
Consulting Engineers
Municipal Engineering Problems
Surveying, Housing Development
Water Supply, Industrial Wastes
Sewerage, Refuse Incineration
Design
Supervision of Construction
2718 Garfield St., Hollywood, Fla.

GREELEY & HANSEN
Engineers
Water Supply, Water Purification
Sewerage, Sewage Treatment
Flood Control, Drainage, Refuse Disposal
14 East Jackson Blvd.
Chicago 4, Illinois

HASKINS, RIDDLE & SHARP
Consulting Engineers
Water—Sewage & Industrial Wastes—Hydraulics
Reports, Design, Supervision of Construction, Appraisals, Valuations, Rate Studies
1009 Baltimore Ave., Kansas City 5, Mo.

The American City Professional Service Directory

HAVENS AND EMERSON
A. A. Burger — H. H. Moseley
J. W. Avery — F. S. Palocsay
E. S. Ordway — G. H. Abplanalp
A. M. Mock — S. H. Sutton
Water, Sewerage, Garbage, Industrial Water, Valuations—Laboratories
Leader Bldg., Cleveland 14, O. — Woolworth Bldg., New York 7, N. Y.

HAZEN AND SAWYER
Engineers
Richard Hazen — Alfred W. Sawyer
H. E. Hudson, Jr.
Water and Sewage Works
Industrial Waste Disposal
Drainage and Flood Control
300 Lexington Ave., New York 17, N.Y.

ANGUS D. HENDERSON
Consulting Engineers
Angus D. Henderson, Thomas J. Casey
Water Supply and Sanitation
330 Winthrop St., Westbury, N.Y.
210-07 29th Ave., Bayside, N. Y.

J. KELLER HENDERSON
Consulting Engineer
Specializing in well development, restoration and increase of specific capacity.
4012 East 41st Place
Tulsa 5, Oklahoma

Harry Hendon & Associates, Inc.
Engineers
Civil Engineers — Public Utilities
Investigations — Designs
Supervision of Construction
P. O. Box 7404A — 925 Sligh Blvd.
Birmingham 13, Ala. — Orlando, Florida

HENNINGSON DURHAM & RICHARDSON
Consulting Engineers since 1917 for more than 700 cities and towns
Water Works, Light and Power, Sewers, Sewage Treatment, Reports, Flood Control, Appraisals, Drainage, Rural Electrification.
2962 Harney St., Omaha 2, Nebraska

HILL and HILL
Engineers
Sewage and Waste Disposal, Water Supply and Filtration
Dams, Reservoirs, Tunnels, Airport and Topographic Survey
Home Office: 8 Gibson Street
North East, Pa.

Henry G. Holzmacher and Associates
Consulting Engineers
Water Supply — Sewerage
Drainage — Parking Facilities
Structures — Surveys
Water Analysis Laboratory
66 West Marie Street
Hicksville, New York

C. H. HOPER & COMPANY
Utilities Engineers
Electric—Gas—Water—Sewer
Rates ● Financial and Economic Analyses ● Planning ● Feasibility Reports ● Valuations ● Organization and Management Studies
818 Seventeenth St. — Denver 2, Colo.

GANNETT FLEMING CORDDRY & CARPENTER, INC.
Engineers
Dams, Water Works, Sewage, Industrial Wastes and Garbage Disposal, Highways, Bridges and Airports
Traffic & Parking—Appraisals, Investigations and Reports.
HARRISBURG, PENN.
Branch Offices
Pittsburgh, Pa. — Daytona Beach, Florida — Philadelphia, Pa.

GIBBS & HILL, INC.
Industrial Wastes
Water & Sewage Works
Hydraulic Developments
Electric Transmission & Distribution Systems
Conventional & Nuclear Power Generation
Power Surveys & Contracts
Airports
Rapid Transit
Highways & Bridges
Pennsylvania Station, New York 1, N. Y.

GILBERT ASSOCIATES, INC.
ENGINEERS AND CONSULTANTS
Water Supply and Purification
Sewage — Industrial Waste
Chemical Laboratory
New York — READING, PA. — Washington

HOWARD R. GREEN COMPANY *Established 1913*
Consulting Engineers
Municipal and Industrial Water Supply and Treatment; Sewerage and Disposal
Airports, Paving, Bridges, Industrial Structures
GREEN ENGINEERING BUILDING, CEDAR RAPIDS, IOWA

Charles W. Greengard Associates
consulting engineers
CHARLES W. GREENGARD ASSOCIATES
CIVIL • SANITARY • MUNICIPAL • UTILITY
Reports — Plans — Supervision — Appraisals
DEERFIELD — ILLINOIS

GRIFFENHAGEN-KROEGER, INC.
Consultants in Public Management
Experienced in City Organization and Methods—Finance—Personnel Practices—Departmental Policies and Practices—Automatic Data Processing—Complete Personnel Testing Services
64 Pine Street, San Francisco — Other Offices: Los Angeles, New York, Washington, D. C., Chicago, Philadelphia

L. B. GRIFFITH
CONSULTING ENGINEER
Research, Reports and Designs on Sewage and Industrial Waste Treatment.
102 East Fairfax St. — Falls Church, Va.

Hardesty & Hanover
Consulting Engineers
Bridges — Long Spans of All Types — Movable — Lift, Bascule and Swing — Hanover Skew Bascule — Steel and Concrete Spans — Grade Crossing Eliminations
Expressways and Thruways — Other Structures — Foundations — Supervision, Reports, Appraisals
101 Park Avenue — New York 17, N. Y.

FREDERIC R. HARRIS, INC.
Consulting Engineers
Economic Reports, Feasibility Studies, Design, Supervision of Construction, Waterfront and Harbor Improvements—Water Supply—Sanitary and Industrial Waste Disposal—Highways Foundations—Soil Mechanics
144 East 44th Street, New York 17, N. Y.
1915 Tulane Avenue, New Orleans, Louisiana

HARRIS, HENRY and POTTER, INC.

Engineers—Architects

Water Supply, Sewerage Systems, Flood Control, Bridges, Highways, Airports, Traffic, Foundations, Buildings, Reports, Investigations, Consultations

Chester, Pa. — Buckingham, Pa.

HARZA ENGINEERING COMPANY

Consulting Engineers

Calvin V. Davis — Richard D. Harza — E. Montford Fucik

Hydroelectric Plants and Dams
Transmission Lines
Flood Control, Irrigations
River Basin Development

400 W. Madison Street — Chicago 6, Ill.

HEATH

Survey Consultants, Inc.

Zero Laurel Ave.
Wellesley Hills 81, Mass.

GAS LEAKAGE CONTROL SURVEYS

- Provide SAFETY & a 3rd Party Audit
- Reduce unaccounted-for losses
- Assist in economical & effective maintenance-repairs
- Conserve & protect Natural Resources

HEMCO ENGINEERS

Sewerage & Wastes
Natural Gas
Municipal Services

Designers & Consultants

FALLS BUILDING MEMPHIS

Water Supply
Foundations
Bridges & Structures

HOWARD, NEEDLES, TAMMEN & BERGENDOFF

Consulting Engineers

Bridges, Structures, Foundations, Express Highways, Administrative Services

1805 Grand Avenue
Kansas City 8, Mo.

99 Church Street
New York 7, N. Y.

HUNNICUTT & ASSOCIATES

433 FOURTH ST., NO.
ST. PETERSBURG, FLA.

COUNTY and MUNICIPAL

REVALUATION
ASSESSMENT MAPS
CONSULTANT SERVICE

OVER 30 YEARS' EXPERIENCE

Brochure on request

MARK HURD AERIAL SURVEYS, INC.

Aerial Photography — Tax Maps

Topographic and Planimetric Maps

345 Pennsylvania Avenue South — Minneapolis 26, Minnesota

WILLIAM T. INGRAM

Consulting Engineer

Water
Sewage
Refuse

Sanitary and Public Health Engineering
Planning—Design—Research

Industrial Wastes
Air Pollution Control
Industrial Health

Offices: East Coast
20 Point Crescent, Whitestone 57, N. Y.

West Coast
90 Panoramic Way, Walnut Creek, Calif.

International AERIAL MAPPING COMPANY
127 AIRPORT BLVD. ★ SAN ANTONIO 9, TEXAS
TAYLOR 6-8681

PRESENTS A MUNICIPAL PROGRAM
OF
AERIAL PHOTOGRAPHY-PHOTO ATLAS SHEETS
MOSAICS AND TOPOGRAPHIC MAPS
WRITE FOR FREE COPY

J. L. JACOBS & COMPANY

Public Administration Consultants and Engineers Since 1915

Property Appraisals and Tax Equalization—Finance—Organization—Procedures
Fringe Area Problems—Facilities—Personnel Classification and Pay Plans

53 W. JACKSON BLVD., CHICAGO 4, ILL.

HORNER & SHIFRIN

Consulting Engineers

E. E. Bloss — V. C. Lisher

Airports, Sewerage & Drainage, Hydrology, Sewage Treatment, Industrial Waste Treatment, Water Supply & Treatment, Paving, Structures, Industry Engineering Services

1221 Locust Street — St. Louis 3, Mo.

Harold Hoskins & Associates

Consulting Engineers

Sewers and Sewage Treatment
Paving Water Supply Drainage
Bridges Airports Reports
Power Plants Surveys
Aerial Photogrammetry

1630 Que St. — Lincoln, Nebr.
725 9th St. — Greeley, Colorado

ROBERT W. HUNT CO.

Engineers

Inspection—Tests—Consultation
Pipe and Appurtenances; Paving and Engineering Materials; Green and Treated Lumber

810 S. Clinton St., Chicago 7 and all large industrial centers.

Bring Your Professional Services

to the attention of municipal officials who consult this Directory regularly. Insert your listing in either single- or triple-card space at a very nominal charge.

Write us for particulars

THE AMERICAN CITY
470 Park Avenue South, New York 16

Jenkins, Merchant & Nankivil

Consulting Engineers

Municipal Improvements — Gas Systems
Highways & Airports — Water Systems
Power Development — Sewerage Systems
Traffic Surveys — Industrial Plants
Flood Control — Recreational Facilities
Investigations and Reports

801-805 East Miller St.
Springfield, Ill.

THE JENNINGS-LAWRENCE CO.

Civil & Municipal Engineers

Water Supply—Treatment—Distribution
Sewerage—Sewage Treatment—Paving
Drainage—Dams — Surveys—Mapping
Reports — Plans—Supervision

1392 King Ave. — Columbus 12, Ohio

Johnson & Anderson, Inc.

Engineers

Sewerage & Sewage Treatment
Water Supply & Distribution
Bridges—Highways
Municipal Engineering
Flood Control and Drainage

Home Office: Pontiac, Mich.
Branch Office: Warren, Mich.

Johnson Depp & Quisenberry

Consulting Engineers

Highways — Water Supply
Airports — Sewage Disposal
Bridges — Surveys

2625 Frederica St., Owensboro, Ky.

JONES, HENRY & WILLIAMS

Consulting Sanitary Engineers

Water Works
Sewerage and Treatment
Waste Disposal

2000 West Central Ave.
Toledo 6, Ohio

"WHO'S WHO"

City Departments can depend upon this Directory as a thoroughly reliable "Who's Who" Among Consulting Engineers Specializing in Municipal Work."

The American City Professional Service Directory

Edward C. Jordan Co., Inc.
Civil and Sanitary Engineers
Sewerage • Sewage Disposal • Industrial Wastes • Drainage • Water Supply • Streets • Highways • Municipal Engineering. Investigations—Reports—Designs—Supervision.
379½ Congress St., Portland, Maine
Tel. SP. 4031S

KREHBIEL & KREHBIEL • engineers
Consulting
DRAINAGE PLANNING SEWERAGE WATER
HIGHWAYS POOLS SUBDIVISIONS
ICE RINKS REPORTS SURVEYS
1868 NIAGARA FALLS BOULEVARD • TONAWANDA, N. Y.

Alfred Kaehrle Associates
Consulting Engineer
Highway Planning—Highway Design
Traffic Engineering Surveys
Parking Studies—Shopping Centers
10 North Main Street
West Hartford 7, Connecticut

KENNEDY ENGINEERS
COMPLETE PUBLIC WORKS ENGINEERING SERVICE
- WATER SUPPLY
- SEWAGE RECLAMATION
- SEWAGE AND WASTE TREATMENT

CHEMICAL AND BIOLOGICAL LABORATORY
San Francisco
Los Angeles
Tacoma
Salt Lake City

SANDERS A. KAHN ASSOC.
Real Estate—Planning
Urban renewal appraisals, marketability studies, shopping centers, industrial, terminals, aviation.
261 Madison Ave.
New York 17, New York
MUrray Hill 7-3363-4

KUCERA AND ASSOCIATES, INC.
PHOTOGRAMMETRIC ENGINEERS • AERIAL PHOTOGRAPHY
CLEVELAND 24, OHIO • CHICAGO, ILLINOIS
City Mapping • Aerial Engineering Surveys • Tax Maps • Atlas Sheets • Photo Mosaics • Nationwide Service

KAISER ENGINEERS
General Engineering Services
Public Works
300 Lakeside Drive
Oakland 12, Calif.
Phone: CRestview 1-2211

KONSKI ENGINEERS
Parking Studies and Parking Structures
Bridges, Highways, Dams, Airports and Industrial Structures
Planning, Design and Supervision of Construction
206 E. Jefferson Street — Syracuse 2, New York

JOHN J. KASSNER & CO.
Consulting Engineers
John J. Kassner — David Levine
Preliminary Studies, Designs, Contracts, Specifications, Highway, Expressways, Structures, Drainage, Sewerage, Waterfront, Site Planning, Housing, Parking, Parks.
8 Church St. — New York 6, N. Y.

The **Kuljian** *Corporation*
engineers • consultants
construction supervision
Designs • Surveys
Planning
1200 NORTH BROAD STREET, PHILADELPHIA 21, PA.
POWER PLANTS, AIRPORTS and AIRPORT FACILITIES
HIGHWAYS, EXPRESSWAYS,
WATER and SEWAGE WORKS,
FLOOD CONTROL, IRRIGATION
INDUSTRIAL PLANTS

KEIS & HOLROYD
Consulting Engineers
Formerly Solomon & Keis
Since 1906
Water Supply and Purification, Sewerage and Sewage Treatment, Garbage and Refuse Disposal and Incineration, Industrial Buildings.
TROY, N. Y.

KOEBIG and KOEBIG
ENGINEERING • ARCHITECTURE • MUNICIPAL PLANNING
Reports • Investigations • Designs • Consultants to Cities Since 1910
3242 W. 8th Street, Los Angeles 5, California
715 Bank of America Building, 625 Broadway, San Diego, California

Kirkham, Michael & Associates
Consulting Engineers
Complete Municipal & Industrial Services—Investigations, Reports, Design, Supervision of Construction, Rates. Water—Sewage & Wastes—Light & Power—Streets—Airports—Bridges & Structures.
Omaha • Rapid City • Fargo

LOCKWOOD, KESSLER & BARTLETT, INC.
CONSULTING ENGINEERS
Studies — Reports — Designs — Supervision
Highways, Bridges, Site Planning, Industrial Buildings, Pipelines, Airports, Harbor Facilities, Traffic Analysis, Water Supply, Sewerage, Incinerators, Air Pollution, Seismic Investigations in addition to Aerial Photography, Cadastral Geodetic, Topographic and Photogrammetric Mapping.
Syosset, N. Y. — Bogota, Columbia — San Juan, P. R.

A. C. KIRKWOOD AND ASSOCIATES
Engineers — Consultants
7800 The Paseo
Kansas City 10, Mo.

METCALF & EDDY
Engineers
Water, Sewage, Drainage, Refuse and Industrial Wastes Problems
Airports, Laboratory, Valuations
Statler Building, Boston 16, Mass.

Bring Your Professional Services
to the attention of municipal officials who consult this directory regularly. Insert your listing in either single- or triple-card space at a very nominal charge.
Write us for particulars
THE AMERICAN CITY
470 Park Avenue South, New York 16

MORRISON-MAIERLE, INC.
Consultiing Engineers
Streets — Bridges — Airports — Irrigation
Structures — Water Supply — Sewerage Works — Industrial Wastes
910 Helena Avenue — Helena, Montana

The American City Professional Service Directory

NUSSBAUMER - CLARKE and VELZY, INC.
CONSULTING ENGINEERS
SEWAGE TREATMENT — WATER SUPPLY — INCINERATION
DRAINAGE — TOWN PLANNING — APPRAISALS
327 Franklin St., Buffalo 2, N. Y. 500 Fifth Ave., New York, N. Y.

PALMER AND BAKER ENGINEERS, INC.
CONSULTING ENGINEERS — ARCHITECTS
Surveys — Reports — Designs — Supervision — Consultation
Transportation and Traffic Problems; Tunnels, Bridges, Highway, Airports; Industrial Buildings; Waterfront and Harbor Structures; Graving and Floating Dry Docks; Vessels, Boats, and Floating Equipment
Complete Soils, Materials and Chemical Laboratories
Mobile, Ala. New Orleans, La. Washington, D. C.

PARSONS, BRINCKERHOFF, QUADE & DOUGLAS
Engineers
Bridges, Highways, Tunnels, Airports, Subways, Harbor Works, Canals, Traffic, Parking and Transportation Reports, Power, Industrial Buildings, Housing, Sewerage and Water Supply.
165 Broadway, New York 6, N. Y.

THE PITOMETER ASSOCIATES, INC.
Engineers
Water Waste Surveys Trunk Main Surveys Water Distribution Studies
Water Measurement and Special Hydraulic Investigations
50 Church Street New York 7, N. Y.

CLYDE POTTS ASSOCIATES
Weston Gavett Stanley N. Williams
Sewerage and Sewage Disposal — Water Works and Water Supply
Valuations and Appraisals
203 PARK AVE. PLAINFIELD, N. J.

RADER AND ASSOCIATES
Engineers-Architects
Water Supply Systems, Sewerage Systems, Waste Disposal, Port Facilities, Harbors, Flood Control, Bridges, Tunnels, Highways, Airports, Traffic, Foundations, Buildings, Reports, Photogrammetry, Investigations, Consultations.
The First National Bank Building, Miami 32, Florida

WILLIAM RAISCH
CONSULTING ENGINEER
REPORTS AND DESIGNS
REFUSE INCINERATOR AND SEWAGE TREATMENT PLANTS
MUNICIPAL AND INDUSTRIAL SEWAGE AND WASTES DISPOSAL
SEWERAGE AND DRAINAGE
61 HILTON AVE. GARDEN CTY, L. I., N. Y.

RAYNOR AERIAL SURVEYS
- Topographic Maps
- Aerial Photography
- Photogrammetric Surveys

Chase Bldg.
New Fairfield, Conn.

- Tax Maps
- Field Surveys
- Controlled Mosaics

THOMAS M. RIDDICK & ASSOCIATES
Consulting Engineers and Chemists
369 EAST 149th STREET
NEW YORK 55, N. Y.
MOtt Haven 5-2424

WATER PURIFICATION
SEWAGE TREATMENT
PLANT SUPERVISION
CORROSION CONTROL
INDUSTRIAL WASTE TREATMENT
STREAM POLLUTION INVESTIGATIONS

LABORATORIES FOR CHEMICAL BACTERIOLOGICAL AND MICROSCOPIAL ANALYSES OF WATER, SEWAGE AND INDUSTRIAL WASTES

CITY DEPARTMENTS
can depend upon this Professional Service Directory as a thoroughly reliable "Who's Who" among Consulting Engineers Specializing in Municipal Work.

MORRIS KNOWLES Inc.
Engineers
Water Supply and Purification, Sewerage and Sewage Disposal, Valuations, Laboratory, City Planning.
1312 Park Bldg.
Pittsburgh 22, Pa.

Bring Your Professional Services
to the attention of municipal officials who consult this directory regularly. Insert your listing in either single- or triple-card space at a very nominal charge.
Write us for particulars
THE AMERICAN CITY
470 Park Avenue South, New York 16

Daniel Koffler and Associates
Consulting Engineers
Structural, mechanical, and sanitary engineering. Bridges, special structures, cold storage warehousing, industrial developments, parking garages, swimming pools, and airplane hangars.
DuPont Blvd. and Washington Ave.
New Castle, Delaware

LADD ENGINEERING ASSOCIATES
Architects—Engineers
Municipal Public Works
FORT PAYNE ALABAMA

CITY DEPARTMENTS
can depend upon this Professional Service Directory as a thoroughly reliable "Who's Who" among Consulting Engineers Specializing in Municipal Work.

HAROLD M. LEWIS
Consulting Engineer, City Planner
Municipal & Regional Planning
Comprehensive and Master Plans
Zoning—Traffic and Parking Studies
Urban Renewal and Redevelopment
Reports—Plans—Ordinances
15 Park Row New York 38, N. Y.

Lorenzi, Dodds and Gunnill
Consulting Engineers
Serving Municipalities in Pennsylvania, Ohio, and West Virginia
1406 Berger Building
Pittsburgh 19, Pa.

LOZIER CONSULTANTS, INC.
Engineers
Sewerage, Sewage Disposal
Water Supply, Water Purification
Refuse Disposal
10 Gibbs St., Rochester 4, N. Y.

The American City Professional Service Directory

Lublin, McGaughy & Assoc.
Architects and Consulting Engineers
Water supply, sewage disposal, airports, streets, improvements, municipal planning, buildings, recreation facilities, reports and appraisals.
220 W. Freemason St., Norfolk 10, Va.
1001 Connecticut Ave., Washington, D. C

Louis C. Ripa & Associates, Ltd.
Designers—Engineers
Planners—Surveyors
184 S. Livingston Ave., Livingston, N. J.
DESIGN, INVESTIGATION, REPORTS, PARKS, RECREATION AREAS, HIGHWAYS, EXPRESSWAYS, OFFICE AND COMMERCIAL BUILDINGS, RESIDENTIAL SUBDIVISIONS, TRAFFIC STUDIES, GEODETIC, GEODIMETER, TOPOGRAPHIC SURVEYS, SITE PLANNING, SHOPPING CENTERS

McCLAVE & McCLAVE
Civil & Consulting Engineers
Established 1906
Municipal Problems, Surveys, Reports, Design, Supervision, Industrial Waste, Sewerage and Water Supply
Flood Control, Highways, Land Development
Cliffside Park, New Jersey
Tel. Cliffside 6-4000

ROBERT AND COMPANY ASSOCIATES
Water Supply
Sewage Disposal
Industrial Wastes
Engineering Division
ATLANTA
Incinerators
Power Plants
Valuations

McNamee, Porter and Seeley
Consulting Civil Engineers
Water Supply and Treatment
Sewerage and Sewage Treatment
Waste Disposal
2223 Packard Road
Ann Arbor, Michigan

RUSSELL and AXON
Consulting Engineers
Civil—Sanitary—Structural—Industrial—Electrical—Rate Investigations
408 Olive Street
St. Louis 2, Mo.
Municipal Airport
Daytona Beach, Fla.

GEORGE B. MEBUS, INC.
Consulting Engineers
Water Supply, Sewage Treatment
Industrial Waste Treatment
Broad Street Trust Bldg.
Glenside, Pa.

SANBORN MAP CO., INC. *(Est. 1876)*
Dept. SP, Pelham, New York, Pelham 8-1649
NEW NATIONWIDE MAPPING, FIELD, AND ANALYTICAL SERVICES
ALL TYPES BASE MAPS — CUSTOM DESIGNED SERVICES FOR
PLANNERS, ASSESSORS, PUBLIC UTILITIES, MARKET ANALYSTS, ENGINEERS
Atlanta
New York
Chicago
San Francisco

DONALD M. OAKES
Public Management Consultant
2518 Foster
Grand Rapids 5, Michigan

IRBY SEAY COMPANY
Consulting Engineer
WATER SUPPLY & TREATMENT
ELECTRICAL
SEWAGE SYSTEMS & TREATMENT
NATURAL GAS
Goodwyn Institute Bldg. MEMPHIS 3, TENNESSEE
Jackson 7-2932

O'BRIEN & GERE
Consulting Engineers
Water Supply, Treatment and Distribution
Sewerage and Sewage Treatment
Industrial Waste Treatment—Flood Control and Drainage
Rate Studies—Development Planning—Surveys
400 East Genesee St., Syracuse 2, N. Y.

SEELYE STEVENSON VALUE & KNECHT
Consulting Engineers
Airports, Highways, Dams, Bridges, Concrete, Steel, Welding, Foundations, Stadiums, APPRAISALS and REVALUATIONS for tax equalization
101 Park Avenue
New York 17, N. Y.

PATZIG TESTING LABORATORIES
Inspection Service
Chemical and Physical Testing of Paving and Building Materials, Metals, Fuels, Oils, Water, etc.
2215 Ingersoll Ave., Des Moines, Ia.

SERVIS, VAN DOREN & HAZARD
Engineers-Architects
Investigations • Design • Supervision of Construction • Appraisals
Water • Sewage • Streets • Expressways • Highways • Bridges • Foundations
Airports • Flood Control • Drainage • Aerial Surveys • Site Planning
Urban Subdivisions • Industrial Facilities • Electrical • Mechanical
2910 Topeka Blvd.
Topeka, Kansas

Malcolm Pirnie Engineers
Malcolm Pirnie, Carl A. Arenander
E. W. Whitlock, Malcolm Pirnie, Jr.
Robert D. Mitchell, Alfred C. Leonard
MUNICIPAL AND INDUSTRIAL
Water Supply—Water Treatment
Sewage and Waste Treatment
Drainage—Rates—Refuse Disposal
25 W. 43rd St. New York 36, N. Y.
2910 Grand Central Ave., Tampa 9, Fla.

SMITH AND GILLESPIE
Consulting Engineers
JACKSONVILLE, FLORIDA
An Organization of Experienced Engineers Specializing in Municipal Utilities and Public Works

ALEXANDER POTTER ASSOCIATES
Consulting Engineers
Water Works, Sewerage, Industrial Wastes, Hydraulic Works, Reports, Designs, Appraisals.
50 Church Street, New York 7, N. Y.

STANLEY ENGINEERING COMPANY
Consulting Engineers
Hershey Building, Muscatine, Ia.
208 S. LaSalle St., Chicago 4, Ill.

The American City Professional Service Directory

PRAEGER-KAVANAGH
Engineers
126 E. 38th St., New York 16, N. Y.

HAROLD S. PRESCOTT
Consulting Civil Engineer
Design—Supervision
Water Supply—Sewerage—Dams
Subdivision & Industrial Development
594 Main St. Placerville, Calif.

Charles C. Redman, Jr.
Engineers & Surveyors
Complete Municipal Engineering, Surveying, Mapping and Planning Services.
P. O. Box 62 Kennett, Missouri
210 Monroe Jefferson City, Missouri

ARTHUR E. ROWE & ASSOCIATES
Municipal Buildings, Swimming Pools, Parking Facilities, Incinerators, Stadia, etc.
3115 Prospects Ave., Cleveland 15, O.

ROBERT H. STELLWAGEN
Consulting Engineers
Municipal and Industrial Waste Problems
Collection, Incineration, Salvage, Pumping, Treatment, Testing
1442 E. Outer Drive Detroit 34, Mich.

Schmidt Engineering Co., Inc.
Consulting Engineers
Reports, Design, Construction Supervison, Heavy Construction Projects, Dams, Hydroelectric, Water and Sewerage Works
Foundation Exploration and Treatment
100 East 10th St., Chattanooga 2, Tenn.

STETSON, STRAUSS & DRESSELHAUS, INC.
Civil & Consulting Engineers
Los Angeles Oceanside Porterville
Water Supply, Drainage, Sewerage, Municipal Works, Foundations, Materials Testing, Surveying & Mapping Investigations, Reports, Designs, Estimates
Main Office: 219 W. 7th St., Los Angeles 14, California

CARL SCHNEIDER
Consulting Engineers
802 Pan American Bldg.
New Orleans 12, La.
Incineration Sanitary Fills
Refuse Collection Sanitation Studies
Reports

ALDEN E. STILSON & ASSOCIATES, LIMITED
Consulting Engineers
Water Supply, Sewerage, Industrial Wastes Bridges, Highways, Industrial and Power Plant Layout, Materials Handling, Process Layouts, Studies, Surveys and Reports.
245 North High St., Columbus 15, Ohio 75 Public Square, Cleveland 13, Ohio

JOSEPH A. SCHUDT AND ASSOCIATES
Civil Engineers—Surveyors
Surveying, Land Planning, Complete Municipal Services Specializing in Subdivision Development
2451 Western Ave., Park Forest, Illinois

TIGHE & BOND
CONSULTING ENGINEERS
BOWERS AND PEQUOT STREETS
HOLYOKE, MASSACHUSETTS
TEL. JEfferson 3-3991
CIVIL, SANITARY AND ELECTRICAL ENGINEERING
INVESTIGATIONS, REPORTS, PLANS AND SPECIFICATIONS
SUPERVISION OF CONSTRUCTION AND OPERATION

SCRUGGS & HAMMOND
Specializing in small city Planning and Zoning, Landscape Architecture, Parks, Schools, Subdivisions.
330 Central National Bank Bldg.
Peoria, Ill.
New Circle Road, Lexington, Kentucky

TOLEDO TESTING LABORATORY
Inspection and Testing of Paving and Engineering Materials
Sub-Surface Exploration and Soil Tests
1810 North 12th Street Toledo 2, Ohio

Ladislas Segoe & Associates
City Planners—Consulting Engineers
Comprehensive City, County and Regional Plans ● Zoning Plans and Ordinances ● Traffic and Parking Studies ● Shopping Centers and Industrial Parks ● Urban Redevelopment and Renewal Projects.
811 Gwynne Bldg., Cincinnati 2, Ohio

Traffic-wise Process Co.
520 Fifth Ave. New York 36, N. Y.
Methods for progressing heavy traffic in small block cities. Primary-secondary coordination with high conducting power. Systematic coordination between highway and street traffic.
John K. Masten, Consultant, Pats. 3,926,332—3,926,333.

GEORGE W. SIMONS, JR. AND ASSOCIATES
Planning Consultants and Municipal Engineers
City, County Plans—Zoning—Redevelopment and Housing—Traffic and Parking Studies — Parks — Recreation — Subdivisions—Landscaping.
402 Hildebrandt Bldg.
Jacksonville 2, Florida

ARNOLD H. VOLLMER ASSOCIATES
Consulting Engineers
Parks — Playgrounds — Pools
Water Supply — Sewerage — Waste Disposal — Air Pollution
Traffic and Parking
25 West 45th Street
Boston New York Louisville

SINGSTAD & BAILLIE
Consulting Engineers
Ole Singstad David G. Baillie, Jr.
Tunnels, Subways, Highways, Foundations, Parking Garages
Investigations, Reports, Designs
Specifications, Supervision.
24 State St. New York 4, N. Y.

CONSULTING ENGINEERS
not already represented in this directory can secure rates for these cards and further particulars of our service by writing to—
Advertising Department
THE AMERICAN CITY
470 Park Avenue South New York 16, N. Y.

SOIL TESTING SERVICES, Inc.
Consulting Engineers
John P. Gnaedinger Carl A. Metz
Soil Investigation, Engineering Reports, Inspection, Foundation Design.
1827 N. Harlem Ave., Chicago 35, Ill.
San Francisco; Kenilworth, N. J.; Havana, Cuba; Milwaukee, Wis.; Portland, Mich.

The American City Professional Service Directory

SOUTHERN MAPPING & ENGINEERING CO.
Consulting Civil Engineers
Planners and Surveyors; Airports and Highway Design; Water Works and Sewage Design; Topography; Tax Mapping Reports and Investigations; Pipe Line Surveys, Acquisition of Right of Way.
216½ Commerce Place, Greensboro, N. C.

WILEY & WILSON
Consulting Engineers
Municipal Planning, Water Supply, Sewerage, Sewage and Waste Treatment, Incinerators, Streets and Pavements, Airports, Light and Power Plants. Reports—Plans—Supervision
620 Court St., Lynchburg, Va.
711 West Main St., Richmond 20, Va.

J. B. WILSON
521 K. of P. Bldg.
Indianapolis 4, Indiana
Sewers, Sewage Treatment.
Waterworks, Water Treatment.
Gas Systems

James O. Yarger and Associates
Personnel & Management Services
Administrative and Fiscal Surveys ● Position Classification and Salary Plans ● Retirement Systems ● Personnel Ordinances & Regulations
An experienced senior staff for your use
309 Walnut St., Falls Church, Virginia

HENRY B. STEEG & ASSOCIATES
Engineers
Sewage Treatment, Water Supply Garbage and Refuse Disposal
3338 North Illinois Street
P. O. Box 5052, Station A
Indianapolis 8, Ind.

WILSEY & HAM
Engineers and Planners
Water and Sewage Works
Flood Control and Drainage
Airports, Traffic Studies and Bridges
City and Regional Planning
111 Rollins Road, Millbrae, California
800 W. Colorado Blvd., Los Angeles 41 California

WILSON ENGINEERING CO.
Consultants
Highways Streets Sewers
Drainage Sub-division
South Public Square,
Glasgow, Ky.

J. C. ZIMMERMAN ENGINEERING CO.
Consulting Engineers
Water Supply and Treatment
Drainage —Flood Relief
Sewerage and Sewage Treatment
Planning Design Supervision
11121 West Oklahoma Avenue
West Allis 19, Wisconsin

OSCAR SUTERMEISTER
City Planning Consultant
City and Regional Comprehensive Plans —Planning, Zoning, Subdivision and Housing Laws—Protective Covenants—Industrial Park Design—Performance Standards—Traffic—Urban Defense.
5923 Johnson Ave., Bethesda, Md.
Washington 14, D. C.

WAINWRIGHT & RAMSEY
Inc.
Consultants on Municipal Finance
70 Pine Street — New York 5, N. Y.

TIPPETTS-ABBETT-McCARTHY-STRATTON
Engineers and Architects
Ports, Harbors, Flood Control, Irrigation, Power, Dams, Bridges, Tunnels, Highways, Railroads, Subways, Airports, Traffic, Foundations, Water Supply, Sewerage, Reports, Designs, Supervision, Consultations.
375 Park Ave. New York 22, N. Y.

J. STEPHEN WATKINS
CONSULTING ENGINEERS
J. S. WATKINS — G. B. WATKINS
Municipal and Industrial Engineering, Water Supply and Purification. Sewerage and Sewage Treatment, Highway and Structures, Reports, Investigations and Rate Structures
Main Office:
446 East High Street, Lexington, Kentucky
Branch Office:
5402 Preston Highway, Louisville, Kentucky
107 Hale Street, Charleston, W. Va.

UHLMANN ASSOCIATES
H. E. Benham — Carl E. Kusk
Nye Grant — J. M. Brundage
Consulting Engineers
Sewage and Industrial Waste Treatment
Water Supply and Purification
4954-58 N. High St., Columbus 14, O.

LEONARD S. WEGMAN CO.
Consulting Engineers
Refuse Disposal, Water Supply, Sewage Collection & Treatment, Highways, Bridges, Special Structures, Shore Erosion & Waterfront Works
Grand Central Terminal — New York 17, N. Y.

WESTON & SAMPSON
Consulting Engineers
Hydraulic and Public Health Engineering—Engineering and Laboratory Investigations
Supervisor of Purification Plants
14 Beacon St. — Boston, Mass.

ROY WENZLICK & CO.
SURVEYS: Economic, Planning, Housing, Parking, Zoning
APPRAISALS and REVALUATIONS for tax equalization
706 Chestnut Street, St. Louis 1, Mo.—Phone: GArfield 1-0707

WHITMAN & HOWARD, Inc.
Engineers — Consultants
Municipal Planning, Water Supply, Drainage, Sewerage, Industrial and Municipal Waste Treatment
89 Broad St. — Boston, Mass.

ROY F. WESTON, INC.
Engineers — Biologists — Chemists
Industrial Wastes — Stream Pollution — Air Pollution — Water-Sewage
Surveys—Research—Development—Process Engineering—Plans and Specifications—Operation Supervision—Analyses—Evaluations and Reports
NEWTON SQUARE, PA.

WHITMAN, REQUARDT AND ASSOCIATES
Engineers—Consultants
Civil—Sanitary—Structural
Mechanical—Electrical
Reports, Plans, Supervision. Appraisals.
1304 St. Paul St., Baltimore 2, Md.

WALTER H. WHEELER
Consulting Engineer
Design, supervision of Construction, Bridges, Buildings, Parking Garages, Foundations, Coffer Dams, Grain Elevators, Flat Slabs with grillage caps, Special Structures.
802 Metropolitan Building — Minneapolis 1, Minnesota

WIEDEMAN & SINGLETON
Consulting Engineers
Water Works, Sewers, Sewage Disposal, Appraisals, Valuations, Reports
760 W. Peachtree St., N.W.
Atlanta 8, Ga.

WILSON & COMPANY
Engineers
Water, Sewerage, Streets, Highways, Dams, Bridges, Electrical, Airfields; Chemical Testing Lab—Aerial Mapping Electronic Computer Services
631 East Crawford — Salina, Kansas

ANNOUNCING
A MAJOR EVENT IN FLEET ECONOMY

The 1961 FORD is built to take care of itself! It is deliberately designed to slash—and in some cases eliminate—maintenance costs. You can actually prefigure just how much you'll save on each 1961 Ford unit in your fleet!

With introduction of the '61 Fords you can cut fleet costs as never before. Here are cars built to save you money through every operating hour . . . and built to retain their value right up through resale time.

HERE'S HOW TO PREFIGURE YOUR '61 FORD FLEET SAVINGS

Chassis lubrication. The '61 Ford will normally go 30,000 miles without a chassis lubrication. Match that against your present lubrication costs.

Oil changes. You can plan on changing oil only at 4,000 mile intervals.

Brake adjustments. Cross this one off your list all together. New Ford brakes mechanically adjust themselves automatically.

Muffler replacements. Divide usual muffler expense by three. Ford mufflers are double-wrapped and aluminized and will normally last three times as long as ordinary mufflers.

Body corrosion. All vital underbody parts are specially processed to resist rust and corrosion . . . even to galvanizing the body panels beneath the doors.

Wax jobs. As an extra dividend, Ford's Diamond Lustre Finish *never* needs waxing.

But that's not all! Your drivers want comfort and convenience and roadability and handling ease . . . and the '61 Ford has these aplenty. Doorways are wide and easy to enter or leave. Front seats are foam-padded. Interior dimensions are as king-sized as ever, but over-all length outside is four inches shorter than last year for easier handling. Steering is easier, too, with a new 30-to-1 ratio. Generous insulation guards against outside heat, cold and noise. Dual sun visors and arm rests are standard. The list goes on and on.

To get complete details on all the '61 Ford features that make such welcome economy news, and to find out about Ford's potential high trade-in value, see your Ford Dealer now.

FORD DIVISION, *Ford Motor Company*

Beautifully built for economy and lasting value . . .

'61 FORD

Index to Advertisers

Professional Service Directory, 233-243

Acme Wire Co., Utility Prods. Div.... 154
Acoustica Associates, Inc..... 218
Adams Printing & Stationery Co., S. G..... 219
Alabama Pipe Co..... 226
Allis Chalmers 82, 83
American Bitumuls & Asphalt Co..... 38
American Cast Iron Pipe Co..... 184
American Concrete Corp..... 145
American Glass Tinting Corp..... 67
American Locker Co..... 220
American Marietta Co..... 168
American Pipe & Construction Co.... 55
American Telephone and Telegraph Co. 4
Anchor Post Products Inc., Fence Div.. 229
Anthracite Equipment Corp..... 226
Aqua Survey & Instrument Co..... 209
Armco Steel Corp. 50, 51
Arnold Electric Co., Inc..... 225
Asplundh Chipper Co..... 60
Atlas Copco..... 154
Austin-Western..... 174
Automatic Voting Machine Corp..... 195

Badger Meter Co..... 79
Bartlett Mfg. Co..... 208
Baughman Mfg. Co..... 219
Bell Telephone System..... 4
Blackburn Smith Mfg. Co., Inc..... 181
Bossert Hotel..... 228
Bradley Washfountain Co..... 197
Byron Jackson Pumps, Inc..... 15

California Metal Enameling Co..... 84
Calmet Meter Div., Worthington Corp. 206
Case Co., J. I..... 31
Cast Iron Pipe Research Assoc..... 42, 43
Caterpillar Tractor Co..... 246
Centriline Corp..... 68
Chain Belt Co..... 158
Charles Machine Works..... 221
Chase Manhattan Bank..... 28
Chesapeake & Ohio Railway..... 46, 47
Chevrolet Motor Div. 166, 167
City Tank Corp..... 148
Clark Equipment Co., Constr. Mach. Div..... 248
Clow & Sons, James B..... 164
Cole-Layer-Trumble Co..... 194
Cole Mfg. Co., R. D..... 224
Computer Measurements Corp..... 232
Continental Machinery Corp..... 228

Dana Corp..... 26
Darley & Co., W. S..... 209
Davey Tree Expert Co..... 64
Deere Industrial Div..... 6
Dempster Brothers, Inc..... 140
Dietz Co., R. E..... 146
Dolge Co., C. B..... 196
Dresser Mfg. Div..... 172, 173
Duncan Parking Meter Corp..... 122

Eagle Signal Co..... 63
Eddy Valve Co..... 80
Ellis Distributing Co..... 208
Ellis & Ford Mfg. Co..... 211

Fisher Pierce Co., Inc..... 134, 135
Fitchburg Engineering Corp..... 179
Flamingo Village..... 216
Flexible, Inc..... 34
Flex-O-Lite Mfg. Corp..... 231
Flink Company..... 191
Flynn & Emrich Co..... 65
Ford Motor Co., Truck Div. 36, 37
Ford Motor Co..... 244
Forney's, Inc..... 210
Fox River Tractor Co..... 49
Franklin Worsted Co..... 200
Frink Sno-Plows, Inc..... 223

Gar Wood Industries..... 156
Gates & Sons, Inc..... 229
General Electric Co., Large Lamp Dept. 141
General Electric Co., Communications Prod. Dept..... 45
Gledhill Road Machinery Co..... 226
Goldak Co..... 182
Good Roads Machinery Co..... 194
Gravely Tractors, Inc..... 196

Halliburton Co..... 175
Harley-Davidson Motor Co..... 8
Hawkins-Hawkins Co., Inc..... 225
Hercules Powder Co..... 212
Hersey-Sparling Meter Co..... 170
Highway Equipment Co..... 69
Holophane Co., Inc..... 121
Hope Electtrical Products Co..... 153
Hough Co., Frank G..... 17
Hydro E-Z Pack Div., Hercules Galion Prod., Inc..... 39

Illinois Stoker Co..... 217
Indiana Gunite & Construction Co., Inc..... 178
Inspectoline, Inc..... 214
International Bronze Tablet Co., Inc... 210
International Business Machines..... 162
International Salt Co..... 59
Irving Subway Grating Co., Inc..... 66

Johns-Manville 85, 160
Johnson Gear & Mfg. Co..... 232

Kasten Mfg. Co..... 204
Keasbey & Mattison Co..... 72, 73
Kelly-Creswell Co..... 217
Kennedy Valve Mfg. Co..... 56
Kern Instruments, Inc..... 208
Kohler Co..... 201

Lake Shore Markers, Inc..... 180
Lathem Time Recorder Co., Inc..... 200
Layne & Bowler, Inc..... 22
Layton Co, Inc..... 211
Lindsay Co., Inc., P. K..... 222
Line Material Industries..... 136
Lock Joint Pipe Co..... 40
Locke Steel Chain, Lawn Mower Div.. 215
LoDal, Inc..... 202
Lord & Burnham..... 159

M-B Corp..... 18
M & H Valve & Fittings Co..... 188
Mack Trucks, Inc..... 32, 33
Magee Hale Park-O-Meter Co..... 119
McCabe Powers Body Co..... 84
Meyer Machine , Inc..... 142
Meyer & Wenthe, Inc..... 221
Millerbernd Mfg. Co..... 124
Miro-Flex Co., Inc..... 152
Mobile Aerial Towers, Inc..... 224
Monarch Road Machinery Co..... 180
Moore, Inc., P. O..... 227
Morse Boulger, Inc..... 227
Morton Salt Co..... 10
Motorola Communications & Electronics, Inc..... 150
Mueller Co..... 24, 147
Multiplex Mfg. Co., Inc..... 210

National Cash Register Co..... 176
National Chemsearch Corp..... 57
National Cylinder Gas..... 209
National Lead Co..... 74
Neenah Foundry Co..... 180
Neptune Meter Co..... 86
Nordberg Mfg. Co..... 48
Northern Gravel Co..... 44

O'Brien Mfg. Co..... 205

Pacific Flush Tank Co..... 19, 20
Parcoa Div., Johnson Fare Box Co.... 58
Pelton Div., Baldwin-Lima-Hamilton Corp..... 35
Pettibone Mulliken Corp..... 14
Pfaff & Kendall..... 128
Phelps Dodge Refining Corp..... 203
Pipe Linings, Inc..... 62
Pitney-Bowes, Inc..... 165
Plastic Age Sales, Inc..... 216
Plectron Corp..... 182
Plymouth Motors Corp..... 70, 71
Portland Cement Association..... 78

Radiator Specialty Co..... 226
Revere Electric Mfg. Co..... 138
Ripley Company, Inc..... 221
Rolatape, Inc..... 169
Royer Foundry & Machine Co..... 186
Rynal Corp..... 224

Sanfax Co..... 81
Schramm, Inc..... 189
Sparkler Mfg. Co..... 207
Standard Instrument Corp..... 194
Steel Plate Fabricators Assoc..... 187
Steiert & Son., Inc., A..... 182
Sterner Industries..... 144
Studebaker-Packard Corp..... 12, 13
Sylvania Electric Products, Inc..... 130
Syntron Co..... 214

Tarrant Mfg. Co..... 214
Tennessee Corp..... 60
Texaco, Inc..... 2
Tractor & Implement Div., Ford Motor Co..... 76, 77
Trojan Mfg. Co..... 224
Turbine Sewer Machine Co..... 216

United States Rubber Co., Mechanical Goods Div..... 75
United States Rubber Co., Naugatuck Chemical Div..... 132
University of Chicago Press..... 227

Vapor Blast Mfg. Co..... 228
Vermeer Mfg. Co..... 149
Vocaline Company of America..... 171

Wald Industries, Inc..... 126
Waukesha Motor Co..... 198
Weil Pump Co..... 192
Wide-Lite Mfg. Co..... 143
Wilco Machine Works, Inc..... 194
Wiley & Sons, John..... 214
Wood Co., John..... 61
Wylie Mfg. Co., Inc..... 211

Yale & Towne Mfg. Co., Trojan Div... 247
Yeomans..... 183

Report on snow removal from Irving Township, Illinois:

"You can't beat Caterpillar for year 'round dependability!"

Highway Commissioner Melvin Stokes says: "As far as we're concerned, Caterpillar builds the best motor graders on the market. Our old No. 212 worked for 15 years with practically no down time. It was worked hard on all kinds of jobs all year 'round. We've now jumped to this larger No. 12E. With all the improvements on it, we can take on any job of grading or snow removal with power to spare."

When Irving Township's 70 miles of roads are hit by snow, this new Cat No. 12E Motor Grader is ready to go. Its independent gasoline starting engine assures positive starts in any weather. Its snow plow built by Omaha Steel Works provides high-speed snow removal. And, no matter how tough the job, the dependability built into this grader keeps it working day after day with a minimum of down time.

That's the kind of performance you need year 'round in a machine. And that's what you can count on from Cat Motor Graders. You have your choice of four: the 115 HP No. 12E; the turbocharged 100 HP No. 112F; the 85 HP No. 112E; and the turbocharged 150 HP No. 14C. Bar none, each is the best investment for your tax dollars. The reasons: higher production, lower maintenance costs, greater availability and higher trade-in value. Get the full facts from your Caterpillar Dealer. Ask him to show you how Caterpillar can do the job and stretch tax dollars for your community!

Caterpillar Tractor Co., General Offices, Peoria, Ill., U.S.A.

944 WHEEL TRAXCAVATOR—another all-purpose Caterpillar machine for snow removal and road work!

Designed for action, safety, dependability and economy, this 2 yd. Cat wheel loader sets new standards of production for this type of machine. Your choice of two other models—the 2¾ yd. 966 and 1¼ yd. 922. Each features finger-tip shifting . . . automatic bucket positioner . . . outstanding operator comfort and safety. Directly interchangeable with the standard bucket, the exclusive side dump bucket eliminates turning and requires less loading space . . . increases versatility of the Cat wheel loaders for snow removal and road work.

CATERPILLAR

Caterpillar, Cat and Traxcavator are Registered Trademarks of Caterpillar Tractor Co.

BEST BUY FOR YOUR TAX DOLLARS

Top Performers in Exploration

Top Performance

...a result of technical exploration

Whether at the poles or in the plant, exploration is the key to technical progress. So it is at Yale & Towne — where Trojan engineers design, develop and test materials and methods that make Trojan tractor shovels the Top Performers on thousands of jobs from busy local streets to barren foreign wastelands.

TROJAN

TROJAN®
TRACTOR SHOVELS
YALE & TOWNE

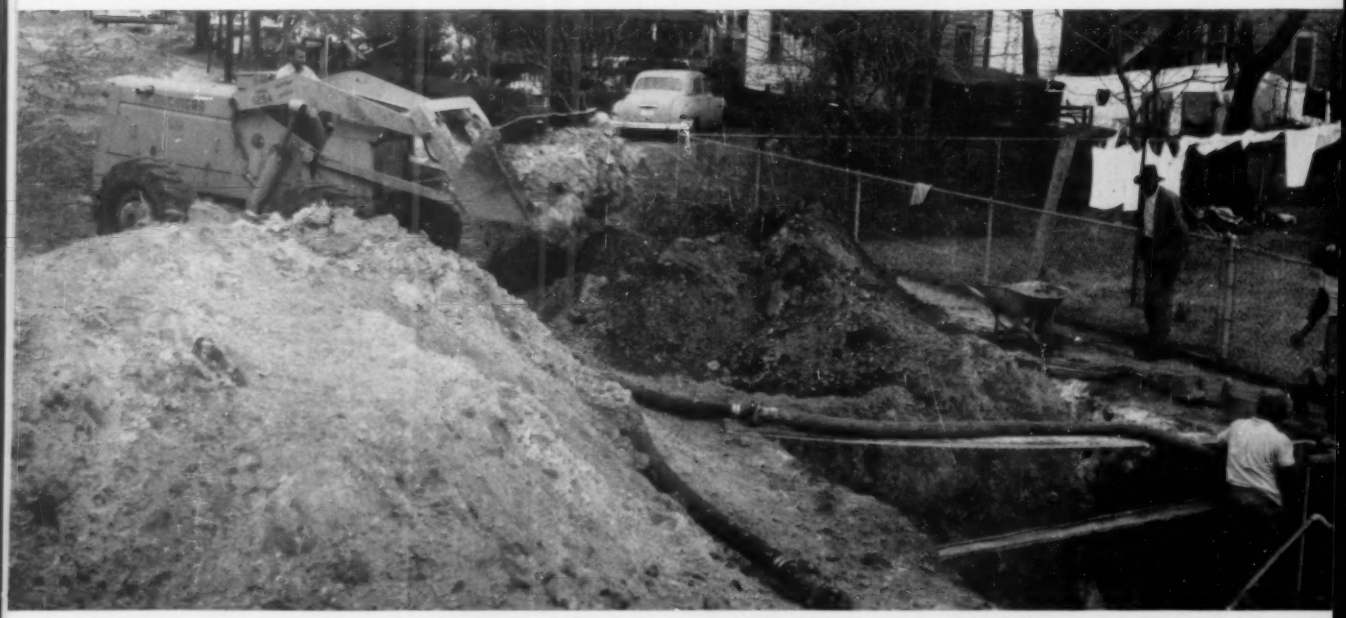
TROJAN TRACTOR SHOVELS ARE AVAILABLE IN 8 MODELS, LIFTING CAPACITIES FROM 6,000 TO 24,000 LBS.

THE **YALE & TOWNE** MANUFACTURING COMPANY

TROJAN DIVISION • BATAVIA, NEW YORK

©YALE & TOWNE MFG. CO.

Supts. tell why City of Jacksonville owns 7 Michigans *(5 Tractor Shovels, 1 Crane, 1 Dozer)*



"Versatile, dependable"

"We use this 2-yd Michigan Tractor Shovel for digging ditches, laying pipe, *and* backfilling. In the four years we've had Michigans, we haven't lost more than a few days work per machine due to mechanical troubles."

—Supt, Sewer Dept

"Half-day, 6-man job cut to ½ hour, 1 man"

"To move and set our old crawler-crane in position for loading at our sand pit formerly took six men half a day. Our 1¼ yd 26 mph Michigan Tractor Shovel has reduced travel to ½ hour, set-up time to nothing. In fact, Michigans are so fast and mobile our *one unit alone* handles grading, cold patching and other repairs at *all three of our airports.*"

—Supt of Maintenance, Airport Dept

"Mobile, well-built"

"Like our Michigan Tractor Shovels and Dozer, our Michigan Crane drives everywhere under its own power. We like its capacity (25 tons, ¾ yds) . . . its rugged carrier (with planetary wheel axles) . . . its good maneuverability."

—Supt, Highway Dept

"Handles landfill at 5 dumps"

"We've had our 162 hp Michigan Tractor Dozer on landfill garbage work for two years now and haven't had a bit of tire trouble. Dozer covers from three to five dumps a day, traveling under its own power from job to job."

--Supt, Street Dept

For the proof of demonstration, see your local Michigan Distributor. Or write:

CLARK® EQUIPMENT

CLARK EQUIPMENT COMPANY
Construction Machinery Division
2495 Pipestone Road
Benton Harbor 27, Michigan

In Canada: Canadian Clark Ltd.
St. Thomas, Ontario

Michigan is a registered trademark of Clark Equipment Co.